AEROWORKS

60-90 EXTRA 260 ARF-QB

(Quick Build)

ASSEMBLY MANUAL

AEROWORKS
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Thank you for choosing the Aeroworks 60-90 EXTRA 260 ARF-QB. We put great effort into making this plane the best model you will ever build and fly. We have provided you with the highest quality kit and performance possible. We wish you great success in the assembly and flying of your new Aeroworks 60-90 EXTRA 260 ARF-QB.

!WARNING!

An R/C aircraft is not a toy! If misused, it can cause serious bodily harm and property damage. Fly only in open areas, and AMA (Academy of Model Aeronautics) approved flying sites. Follow all manufacturer instructions included with your plane, radio, servo's, batteries and engine.

Aeroworks manufacturing guarantees this kit to be free from defects in both material and workmanship at the date of purchase. This warranty does not cover any component parts damaged by use or modification. In no case shall Aeroworks liability exceed the original cost of the purchased kit. Further, Aeroworks reserves the right to change or modify this warranty without notice.

In that Aeroworks has no control over the final assembly or materials used for final assembly, No liability shall be assumed nor accepted for any damage resulting from the use by the user of the final user-assembled product. By the act of using the user-assembled product, the user accepts all resulting liability.

We, as the kit manufacturer, have provided you with a top quality, thoroughly tested kit and instructions, but ultimately the quality and fly ability of your finished model depends on how you build it; therefore, we cannot in any way guarantee the performance of your completed model, and no representations are expresses or implied as to the performance or safety of your completed model.

INTRODUCTION

Your new 60-90 EXTRA 260 ARF-QB is a highly aerobatic airplane. It is capable of both precision and 3-D maneuvers. The aircraft builds easily, quickly, and precisely due to its state of the art CAD design, LASER cut technology, and high quality included hardware. We hope you enjoy building and flying your 60-90 EXTRA 260 ARF-QB.

Great care has been taken in both the design and manufacturing of the 60-90 EXTRA 260 ARF-QB to allow for the strongest and lightest construction possible. Only the highest quality materials from the covering, paint, wood and hardware have been used in the construction of this model.

The 60-90 EXTRA 260 ARF-QB has been individually hand built, covered and painted by trained and experienced craftsmen with over 25 years of manufacturing experience. Using CAD design, laser cut technology and jig-built assures accuracy in all stages of production.

The 60-90 EXTRA 260 ARF-QB is designed for glow engines in the 60-90 category, it is also designed to accept electric power. The OS .61 engine and Electric power package shown in the assembly are available from Aeroworks. The aircraft was tested with the OS .61 and has outstanding performance. The final choice of engine is left up to the builder. A computer radio is recommended to allow the pilot to take advantage of the full capabilities of this aerobatic aircraft.

IMPORTANT Please read through this manual carefully, before starting the assembly of your new 60-90 EXTRA 260 ARF-QB . Inventory and inspect all parts and hardware for any imperfections or damage. Notify **Aeroworks immediately** if there are missing or damaged parts.

INTENDED USE

This plane should not be regarded as a toy. This is an aerobatic plane and is recommended for pilots who are beyond the trainer-stage and are comfortable with flying an aerobatic sport plane.

!READ! WARRANTY !READ!

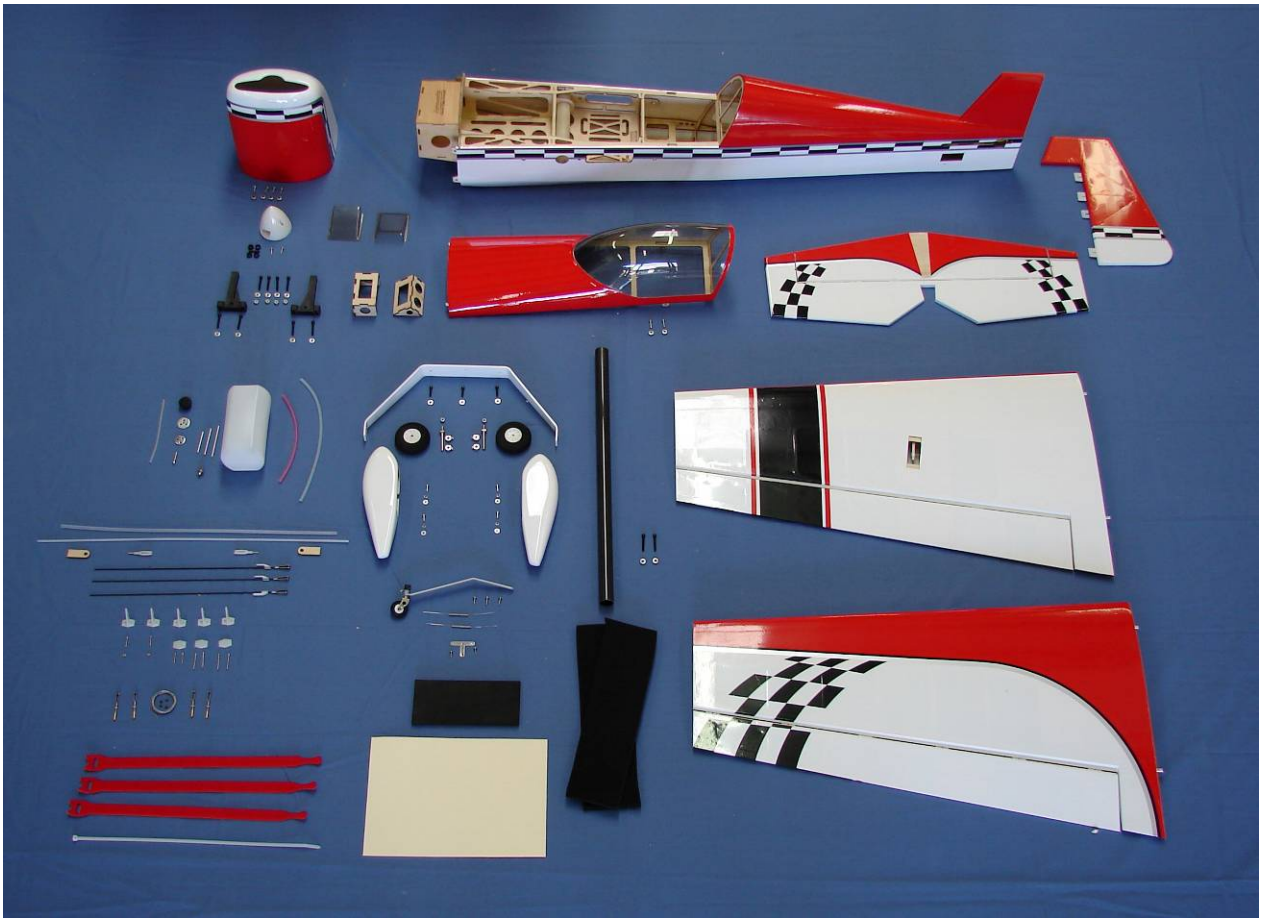
It is important to notify Aeroworks of any damage or problems with the model within 30 days of receiving your airplane to be covered under warranty. All returned parts must be shipped in their original shipping boxes and insured for full replacement value. If you wish to return this aircraft for any reason a 15% restock fee will be charged to the customer. In addition the customer is responsible for all return shipping cost and all prior shipping cost will not be refunded. Parts will be fixed or replaced once the original item is returned at the owner's expense. It is the decision of Aeroworks if the item is to be replaced or repaired.

Aeroworks cannot insure the skill of the modeler and can not influence the builder during the construction or use of this aircraft, and therefore, will not be accountable for any property damage, bodily injury or death caused by this aircraft.

Aeroworks cannot insure the skill of the modeler and can not influence the builder during the construction or use of this aircraft, and therefore,

The purchaser/operator accepts all responsibility of any and all structural or mechanical failures.

KIT CONTENTS



MATERIAL LIST
60-90 size Extra 260

BASIC AIRCRAFT PARTS:

Fuselage with pre-installed vertical fin – covered, fire-wall fuel-proofed, pre-drilled three holes for the tail wheel assembly and 4 CA hinges slots opened:
(3) 6-32 blind nuts installed for main landing gear
(4) 6-32 blind nuts installed for the engine mounts
(6) 4-40 blind nuts installed for the mounting of cowl-ing
Canopy base—painted, with (4) 4-40 blind nuts in-stalled
(1) Tinted Canopy—glued on the canopy base and painted, installed on the fuselage by (4) 4-40x14mm hex style bolts
(4) #6 bonded washers for the mounting of the canopy
(4) 3mm split lock washers for the mounting of the canopy
(1) 3.5(o.d.) x600mm Antenna tube installed
(2) 3.5(o.d.) x70mm pull-pull exit tube installed

Left Wing with Aileron – covered: Pre-drilled for the mounting of the control horns
(1) 6-32 blind nut installed for the wing mounting.
(2) 6mm dia. located pins installed pre-drilled hole for cotter pin
(6) CA hinges in position but not glued
(1) Aileron servo string installed

Right Wing with Aileron – covered: Pre-drilled for the mounting of the control horns
(1) 6-32 blind nuts installed for the wing mounting.
(2) 6mm dia. located pins installed pre-drilled hole for cotter pin
(6) CA hinges in position but not glued
(1) Aileron servo pull string installed

Horizontal Stabilizer with elevator assembly with (6) CA hinges (not glued)---covered Elevators Pre-drilled for the mounting of the control horns

Rudder with (4) CA hinges (not glued) – covered Rudder Pre-drilled for the mounting of the control horns and pre-drilled for steering arm

SUB ASSEMBLIES:

#1:
- **(1) Fiberglass Cowling—painted with (6) screws holes**
- **(6) 4-40x10mm hex style bolts for mounting cowling**
- **(6) #6 bonded washers for mounting cowling**
- **(6) 3mm split lock washers for mounting cowling.**

#2:
- **(1) 3mm 7075Aluminum Main Landing Gear -- painted**
- **(2) 4x33mm Axle Bolts**
- **(2) M4 lock nuts**
- **(4) 4mm i.d. Wheel Collars with set-screws**
- **(2) 64mm Dia. Main Wheels**
- **(4) 4-40x10mm hex style bolts for mounting wheel pants**
- **(4) 3mm flat washer for mounting wheel pants**
- **(4) 3mm split ring lock washer for mounting wheel pants**
- **(3) 6-32x15mm hex head bolts for mounting main landing gear**
- **(3) 3.5mm flat washers for mounting main landing gear**
- **(3) 3.5mm split washer for mounting main landing gear**

#3:
- **(2)Wheel Pants—1 Left and 1 Right---Painted**
- **(4) 4-40 blind nuts installed on the wheel pants, 2 per side**

#4:
- **(1) Tail Wheel Assembly – Small**

#5:
- **(1) 23mm o.d. carbon with fiberglass filled wing tube**
- **(2) 6-32x25mm Hex head bots for wing mounting**
- **(2) #6 bonded washer for wing mounting**
- **(4) 1.2mm cotter pins**

#6:
- **(3) 1.8x300mm one end threaded pushrod with metal clevis and half nylon clevis on the other end**
- **(1) 5mm o.d.x350mm plastic tube – throttle pushrod outside tube**
- **(1) 3.2mm o.d.x300mm throttle pushrod**
- **(2) 2.1x22mm threaded rod with nylon clevises**
- **(1) 1.8x300mm push rod with Z bend on one end**
- **(1) 3.5mm o.d. x300mm push rod sleeve**
- **(1) Easy Connector**
- **(2) Plywood plastic tube holder**

#7:
- **(2) 0.8x800mm plastic coated pull-pull steel cable**
- **(7) M2 Metal R/C links with metal clevises and nuts**
- **(4) 2x3mm brass pull-pull swaging tubes**
- **(5) Nylon control horns**
- **(3) Nylon control horn base plates**
- **(6) M2x25mm Phillips head mounting bolts**
- **(2) M2x15mm Phillips head mounting bolts**
- **(2) M2 hex nuts**

#8:
- **(1) 450cc (15 oz) Fuel Tank assembly**
- **(1) 1ft. glow fuel line - clear**
- **(1) 1 ft. glow fuel line - color**

#9:
- **(1) 2-1/4" White Spinner Assembly**

#10:
- **(2) .60 size engine mounts, 1 left and 1 right**
- **(8) 6-32 x25mm hex head bolts**
- **(8) 3.5mm flat washers**
- **(8) 3.5mm split lock washers**
- **(4) 6-32 lock nuts**
- **(4) 6-32 blind nuts for electric version**

#11:
- **60x130x60mm foam rubber for bottom of fuel tank**
- **(1) 25x25x70mm foam rubber for front of fuel tank**
- **(4) 3x145mm Nylon ties**
- **(2) 5x450mm Nylon ties**
- **(3) 610x20mm Velcro Strap**
- **(1) 8"x10" card stock for cutting out cowling**
- **(1) Air inlet template for cutting front of cowling**
- **(2) Air inlet – plastic vacuumed**
- **(1) Throttle servo tray**
- **(1) Spacer Plate (Electric)**

#12:
- **Paper Rudder Deflection Meter – Small**

#13 Decal set

ITEMS NEEDED TO COMPLETE

Hardware:

- .60-90 Glow engine
- Standard or Pitts style Muffler
- 2 x aileron servos (min 80 in./oz. Torque @ 4.8 volts)
- 1 x rudder servo (min 80 in./oz. Torque @ 4.8 volts)
- 1 x elevator servo (min 80 in./oz. Torque @ 4.8 volts)
- 1 x throttle servo (Fast / Reliable)
- Servo extensions 1 x 12” 4 x 6”
- 1 x 6 channel receiver/Radio
- 1 x receiver battery (min 4.8 volt / 1100ma)
- 1 x switch with charge jack

Tools:

- Allen wrenches US and Metric.
- Dremel cutting disc and sanding drum tool
- Electric drill and selection of bits
- Razor saw
- Flat head screwdriver
- Hobby heat gun
- Hobby iron and covering sock
- Masking tape
- Modeling knife
- Needle nose pliers or crimping tool
- Paper towels
- Pen, pencil or felt tipped marker
- Phillips screwdriver
- Rubbing alcohol
- Ruler and tape measure
- Scissors
- T pins
- Waxed paper
- Wire Cutters

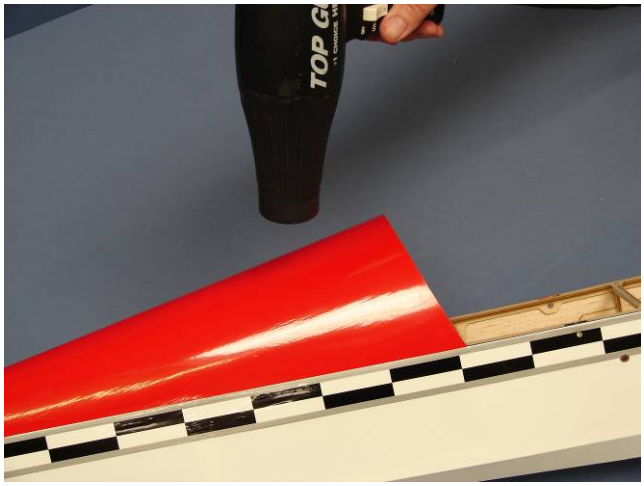
Adhesives:

- 15-30 Minute epoxy
- Blue Loctite
- Epoxy mixing cups, mixing sticks, brushes
- CA kicker (optional)
- Thick, Thin and Medium CA
- Rubbing alcohol
- Wipes

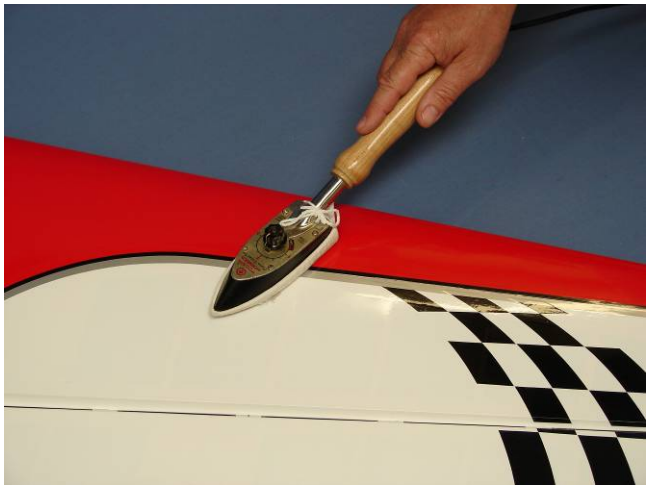
WARNING
Some rubbing alcohols may attack painted parts.

TIGHTENING AND RE-SHRINKING THE COVERING

1. Open your kit slowly and take care not to damage any parts of the kit. Remove all parts from their plastic protective covers for inspection. Before doing any assembly or installation of any decals it is very important to re-shrink or re-tighten the already applied covering. Due to the shipping process, heat and humidity changes from different climates, the covering may become lose and wrinkle in the sun. If you take the time to re-tighten the covering, you will be rewarded with a long lasting beautifully covered model.

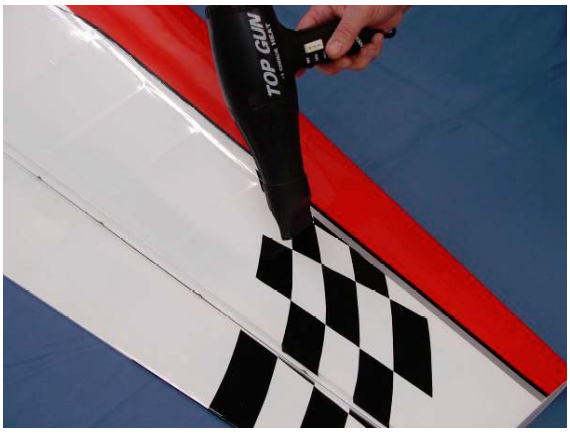


2. Using your covering iron with a soft sock, gently apply pressure and rub in the covering. If any bubbles occur, your iron may be to hot. Reduce heat and work slowly.



3. If bubbles persist, use a small pin to punch holes in the bubble to relieve trapped air and reheat.

4. Use your heat gun with extreme caution. Take care not to apply too much heat to one area for long periods of time. This may cause the trim colors to over shrink and pull away leaving unsightly gaps on the color lines. The trim stripes are especially vulnerable to over shrinking.



5. Your model is covered with Ultracote™ covering. In case of repairs, the colors are:

Red / Silver Scheme

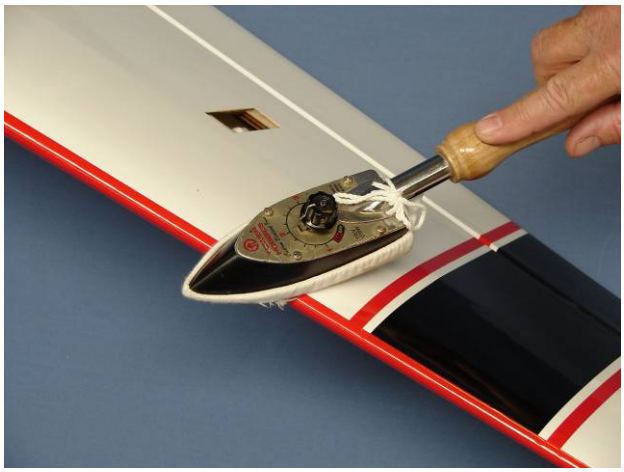
True Red	**#866**
White	**#870**
Black	**#874**
Silver	**#881**

Tightening and re-shrinking the covering is a never ending process and needs to be checked after each flying secession.

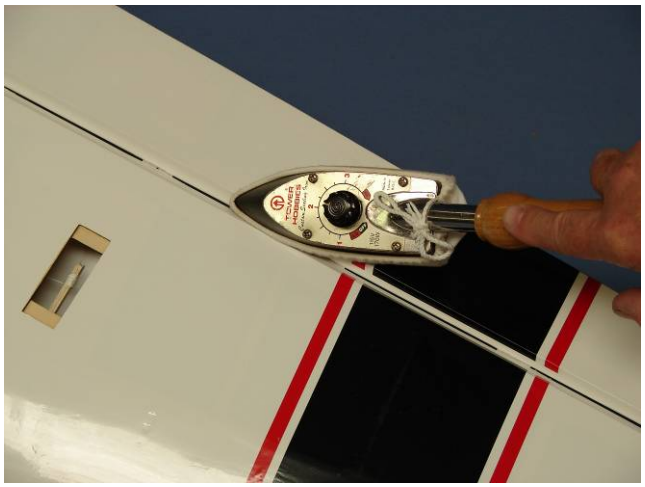
CHECKING SEAMS AND COLOR OVERLAPS FOR GOOD SEAL

1. Go over all seams and color overlaps with your sealing iron.

Note: Even if your models covering has no wrinkles out of the box it is still very important to go over all seams and overlaps to make certain they are sealed securely. This is especially important at the leading edges of the wings and stabs. We recommend checking the covering after each flying session.



2. Use your covering iron to ensure all edges, seams, and color overlaps are securely sealed.



IMPORTANT:

It is the purchaser / user responsibility to check the covering seams and overlaps for security and a good seal. Aeroworks is not responsible for failure of covering seams or overlaps during flight.

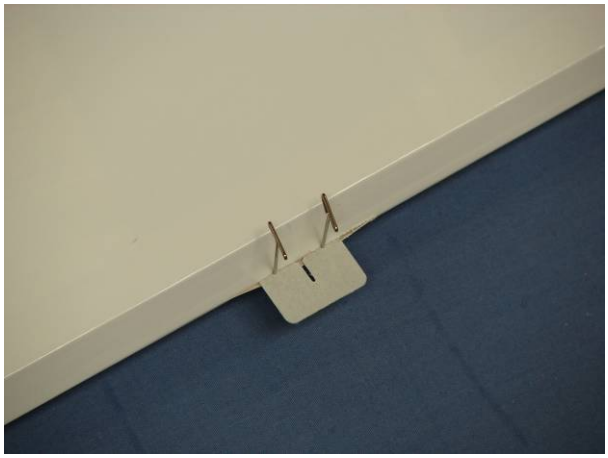
This is a never ending process that must be done after each flying secession. Due to varying temperatures and humidity changes from day to day the covering will continue to loosen and must be maintained.

WING ASSEMBLY

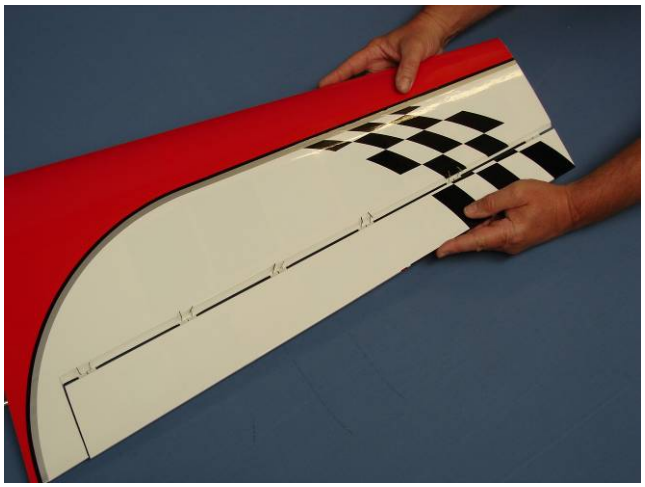
Aileron/Servo Installation

The ailerons and wings come pre-hinged but are not glued. The builder must glue the hinges in place using thin CA.

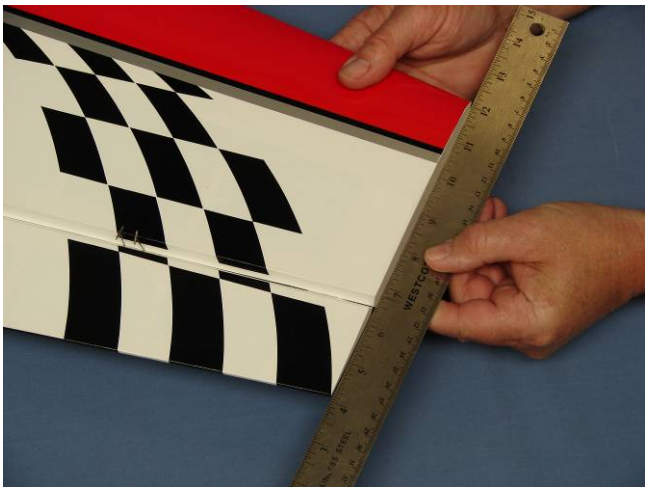
1. Center the hinge in the pre-cut hinge slot using T-pins. Make sure that the hinge is straight to prevent binding.



2. After all 6 CA hinges have been placed in the wing slide the aileron onto the hinges. Once again it is very important that the hinge stay straight.



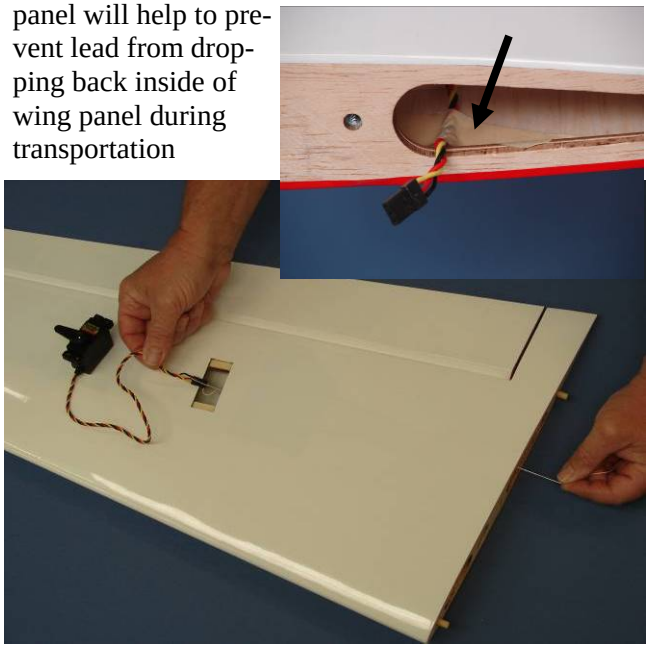
3. Use a straight edge to make sure that the aileron sits flush with the wing-tip.



4. Remove the T-pins from each hinge. Using a new bottle of thin CA apply 3-4 drops on each side of the hinge. Be careful not to over soak the hinges with CA this can cause failure.

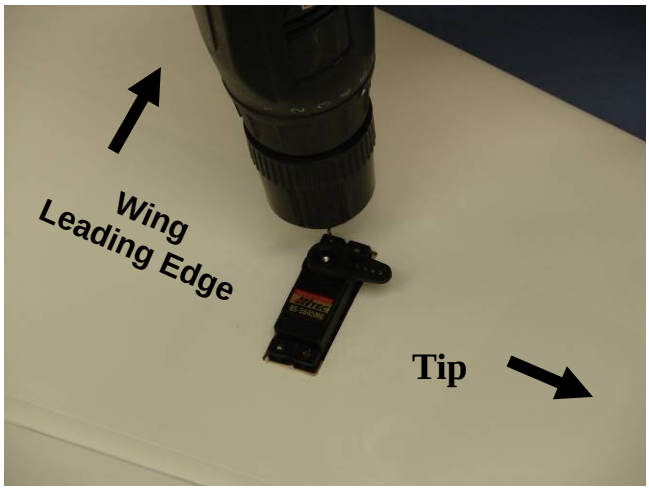
5. Using preinstalled draw string draw the servo extension through the wing and pull through the wing root rib.

Note: Taping servo lead to the inside of the wing panel will help to prevent lead from dropping back inside of wing panel during transportation

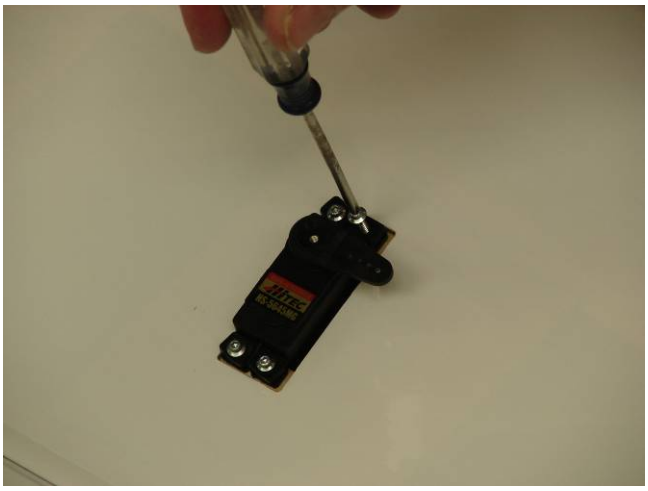


6. Install servo in servo well with the output arm toward the leading edge of the wing. Mark and drill location of servo mounting holes.

7. Install servo arm to servo with arm facing toward tip of wing.

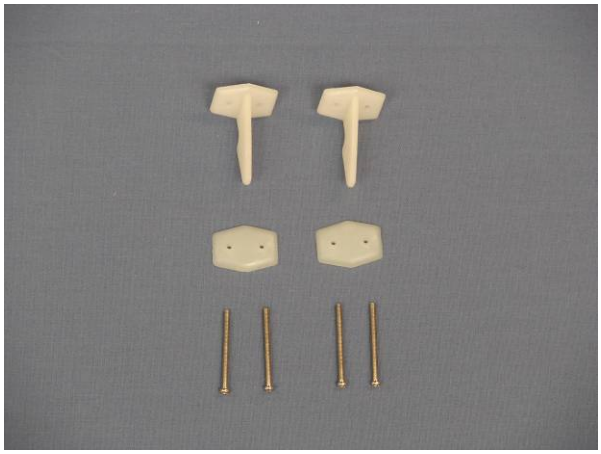


8. Install the servo using the hardware supplied by the servo manufacturer.



Pushrod / Control Horn Installation

1. Gather the aileron control horn parts as shown below. 2 Nylon control horns 2 base plates and 4 2x25mm Phillips head mounting bolts.



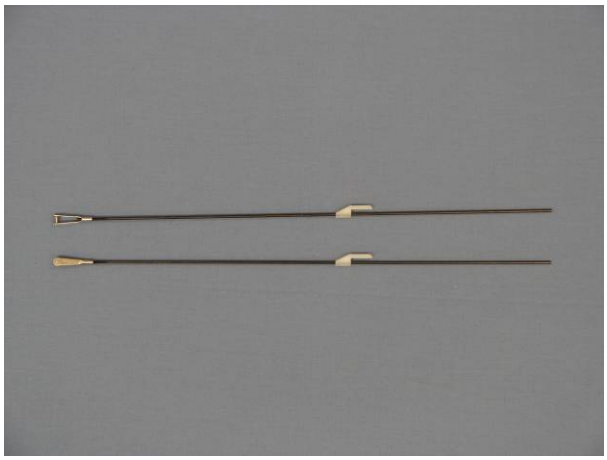
2. Place the control horns over the predrilled mounting holes.

3. Use a Phillips screw driver to install the 2 control horn mounting bolts.

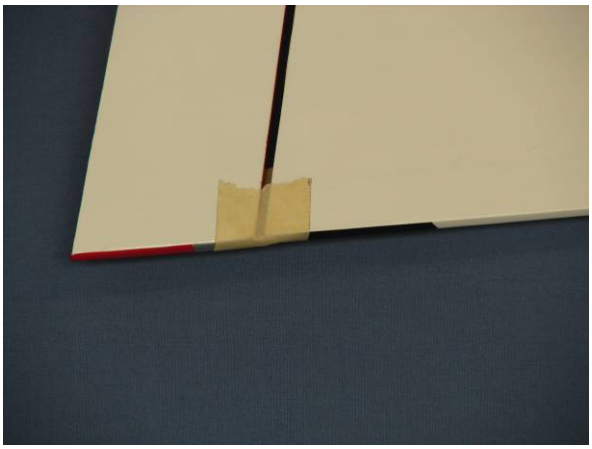
4. Thread the two mounting bolts into the control horn back plate on top of the aileron. Be careful not to over tighten as this could crush the sheeting.

5. Use a pair of wire cutters to trim the excess bolts from the top of the wing.

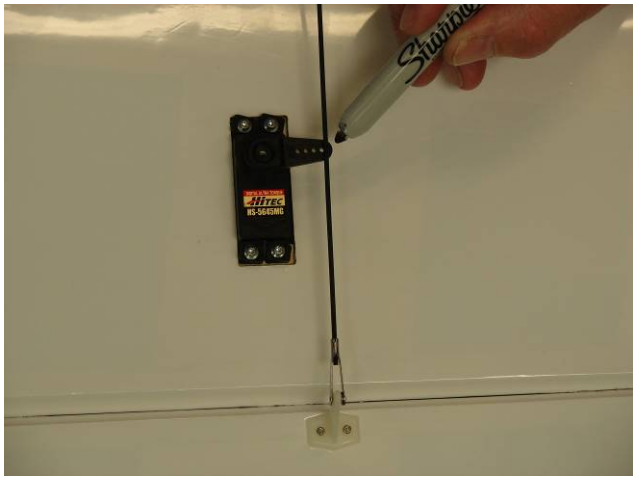
6. Locate the 2 aileron pushrods, 2 metal R/C links and 2 nylon keepers.



7. Use tape to keep the aileron centered during the pushrod installation. This will ensure that your pushrods are the correct length.

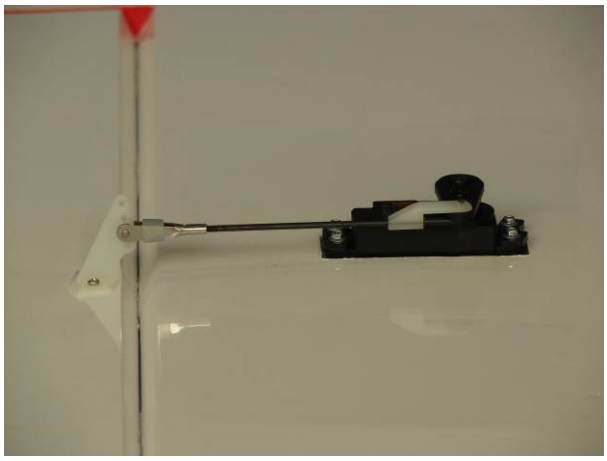


8. Install the pushrod onto the nylon control horn using the supplied R/C Link. Center all servos using the radio, leave the radio on until you have clearly marked the pushrod. Using a felt-tip pen mark the location for the 90 degree bend on the push rod.



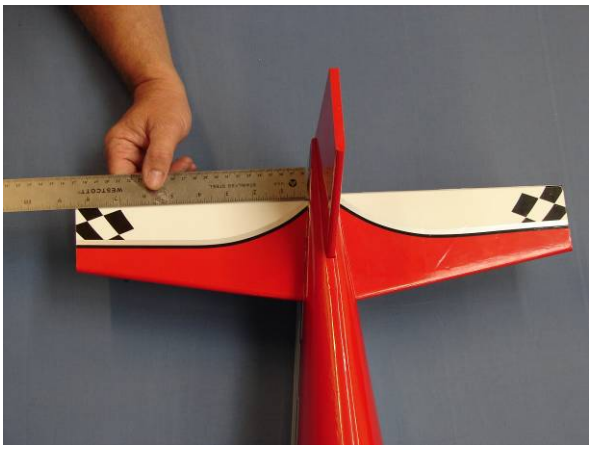
9. At the location marked in the previous step make a 90 degree bend in the pushrod. Remove the excess rod on the non-threaded side of the bend with a pair of wire cutters. Install the pushrod through the servo arm and into the nylon keeper.

10. Final servo installation shown below. Be sure to use a piece of fuel tubing over the clevis to keep it secure.

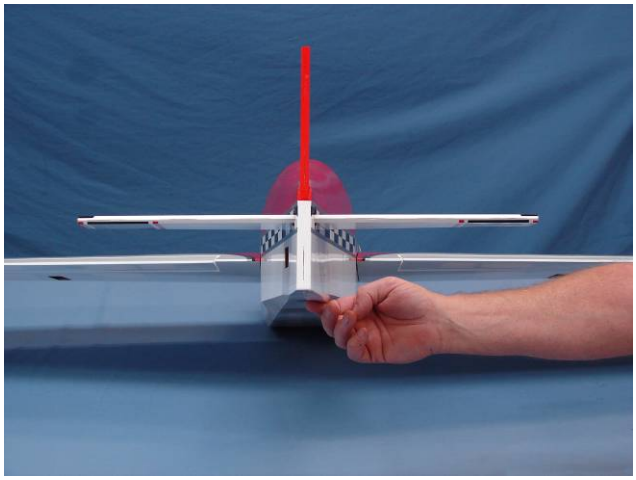


Stab/Elevator Installation

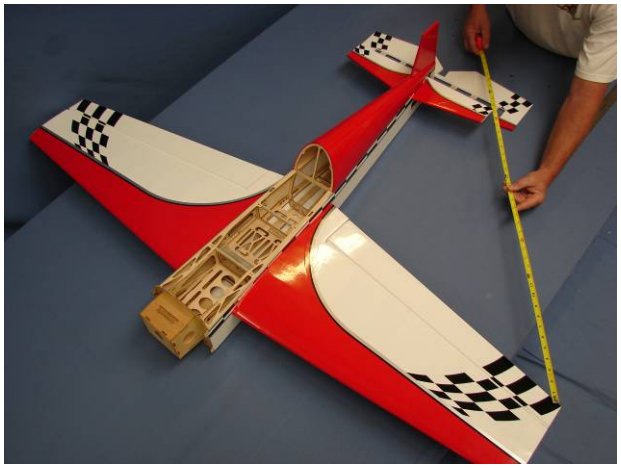
1. Slide the horizontal stabilizer into the pre-cut slot in the fuse. Use a ruler to center the stab from the back like shown below.



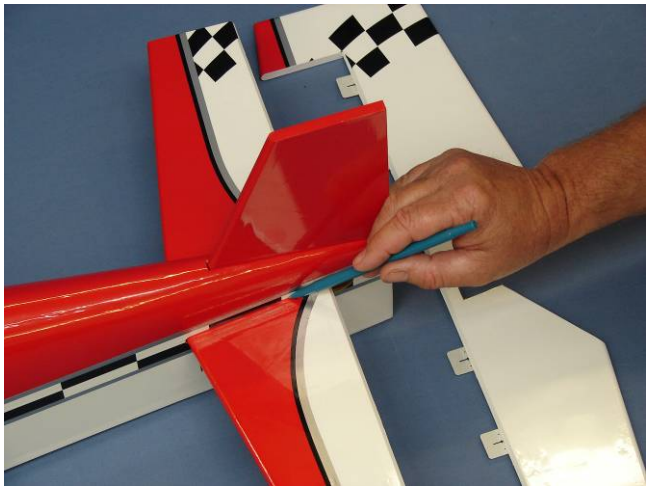
2. Install the wing and check the alignment of the stab to the wing.



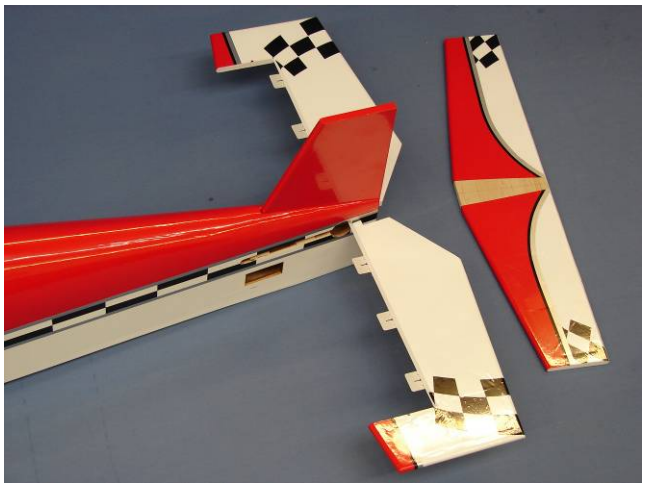
3. Ensure the ailerons are centered with the wing, it may be necessary to tape them in place. Adjust the stab so it is centered left to right in the fuse and is pushed all the way forward. Measure from the wingtips to the back corner of each side of the stab. Adjust the stab until these distances are equal. This ensures the stab is square with the wing.



4. Use a pen to lightly mark the stabs position in relation to the fuse on both top and bottom.

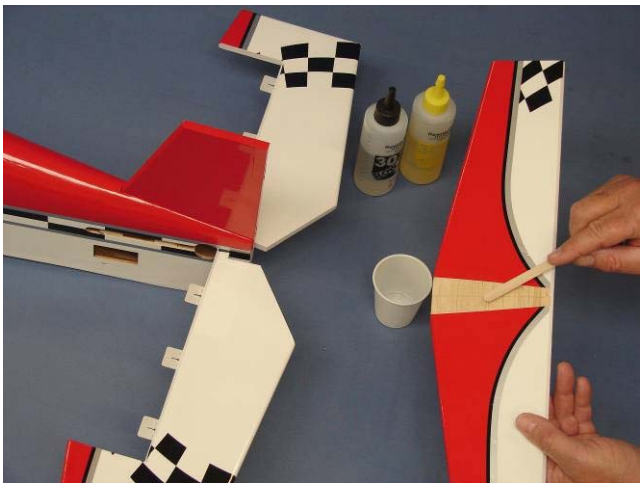


5. Remove stab and insert elevator into fuse. Push elevator to the rear of the slot.

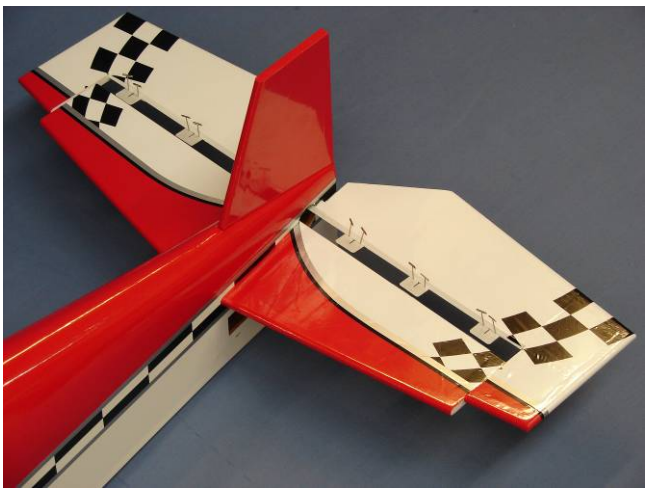


6. Mix 30 Minute Epoxy and brush onto the exposed wood in the center of the stab. Make sure to use epoxy on both top and bottom. Insert stab back in fuse and double check alignment. Allow the Epoxy to dry before continuing.

   Note: Clean off excess epoxy using rubbing alcohol.



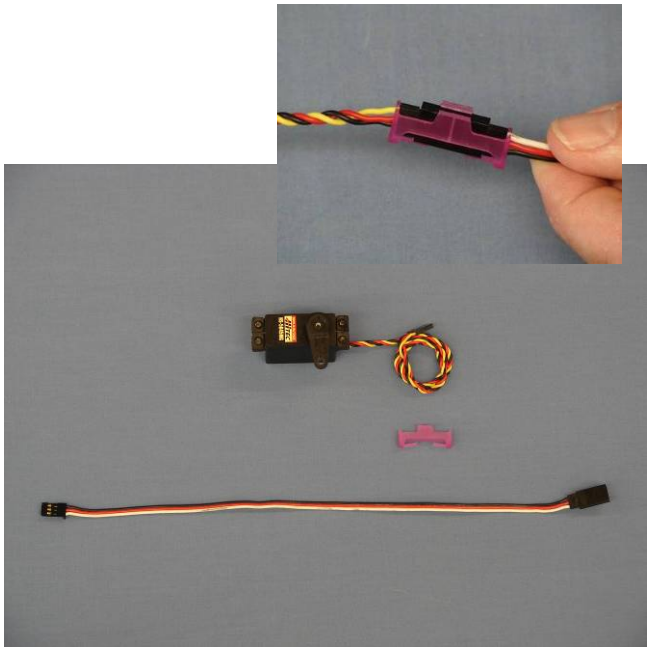
7. Pin each CA hinge using the same method that was used for the wings.



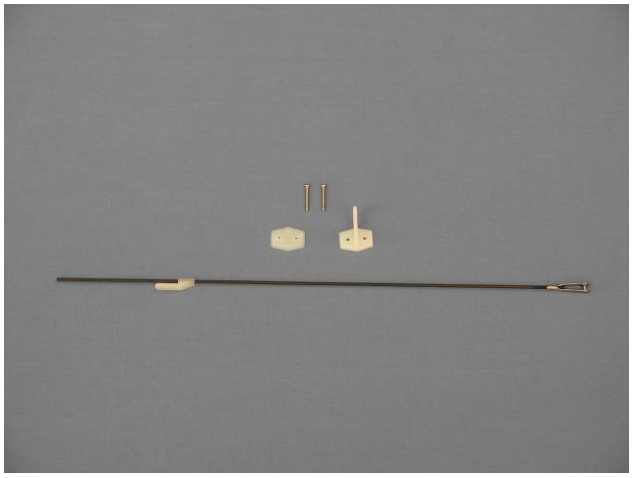
8. Install the elevator hinges into the stab and remove the pins. Use thin CA to glue the hinges in place.

Servo and Pushrod Installation

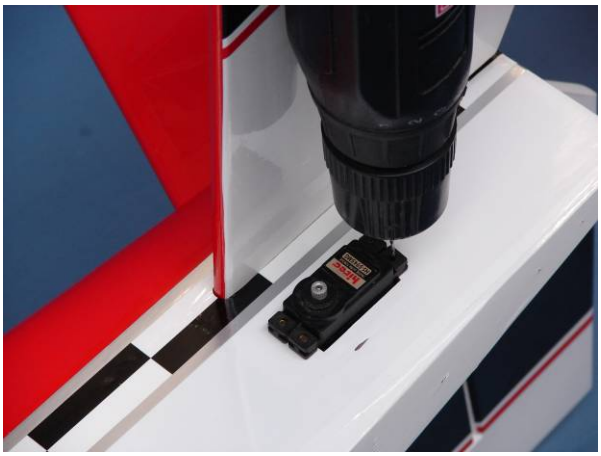
1. Gather the elevator servo and 12” extension. It is recommended that an Aeroworks safety clip is used on the connecter to keep the extension connected to the servo.



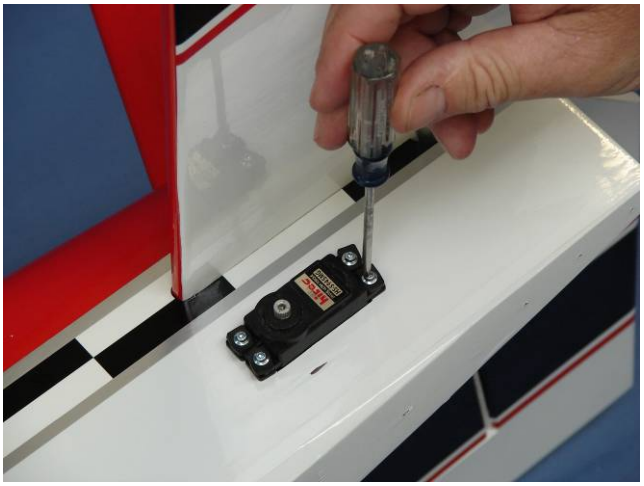
2. Gather the elevator pushrod, metal R/C link, plastic keeper, 2 25mm bolts, and a nylon control horn with base plate.



3. Install the elevator servo with the output shaft facing forward into the pre-cut opening in the side of the fuse. Us a 1/16” drill bit to drill the 4 servo mounting screw holes.



4. Install the servo using the hardware supplied by the servo manufacturer.

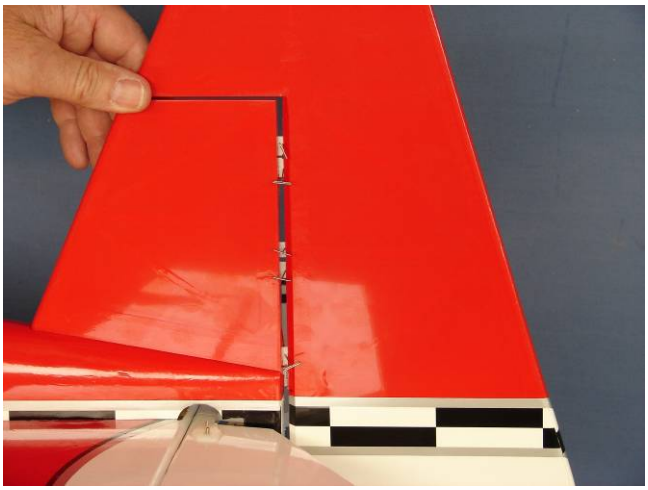


5. Install the nylon control horn using the same method as described on the wings.

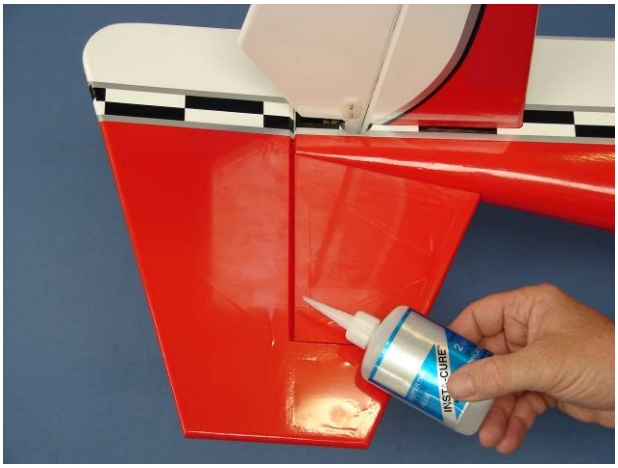
6. Finished elevator servo and pushrod assembly shown below.

Rudder and Pull-Pull installation

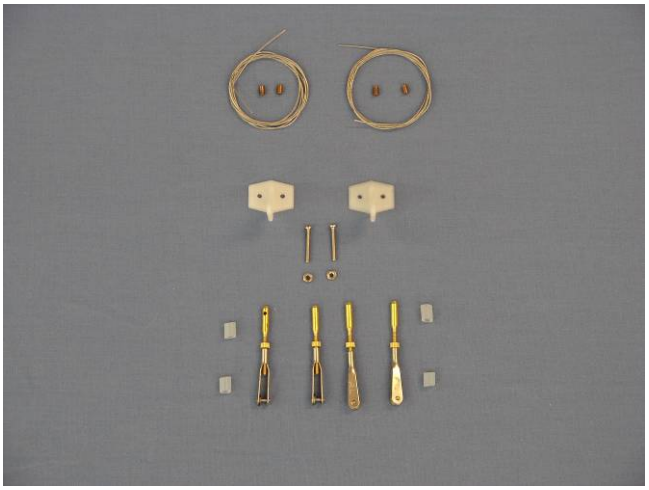
1. Install the hinges using the same method described for the wings and stab.



2. Use 3-4 drops of Thin CA on each side of the rudder to securely glue each hinge to the Vertical fin.



3. Gather the pull pull hardware,2 0.8 x 800 mm pull pull cable, 4 brass swaging tubes, 4 threaded couplers with R/C links, 2 nylon control horns, 2 2mm x 15mm mounting bolts, 2 2mm hex nuts and 4 pieces of fuel tubing.



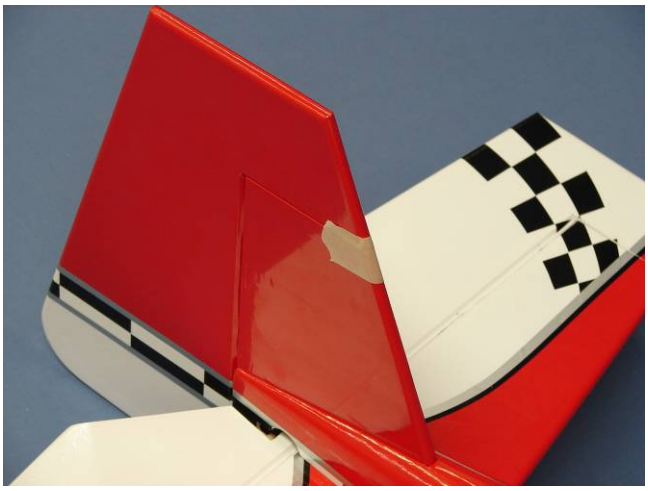
4. Gather the rudder servo and a 2” double out put arm, this will give you the best geometry and the most throw.

5. Install the nylon control horns on the rudder. Install the 2mm nuts on one side of the horns.

6. Place a drop of Thick CA on the nuts to prevent them from loosening in flight.

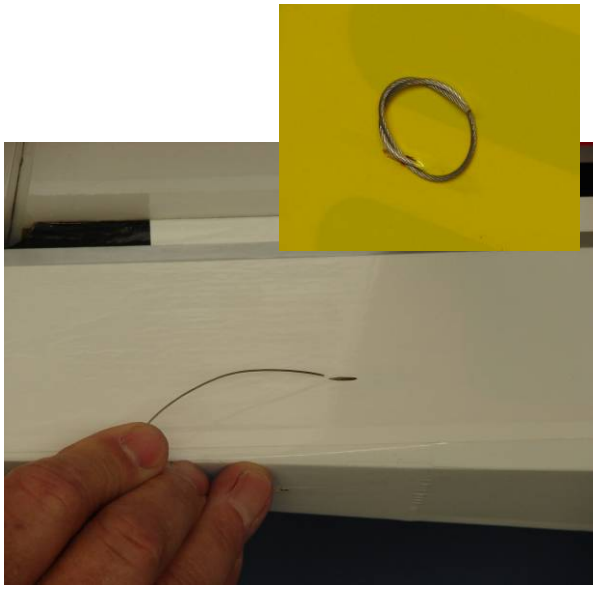
7. Install the rudder servo with the output shaft facing towards the rear in the pre-cut slot inside of the fuse.

8. Tape the rudder balance tab to the top leading edge of the vertical fin in the neutral position as shown. This ensures the rudder is straight when the cables are attached.



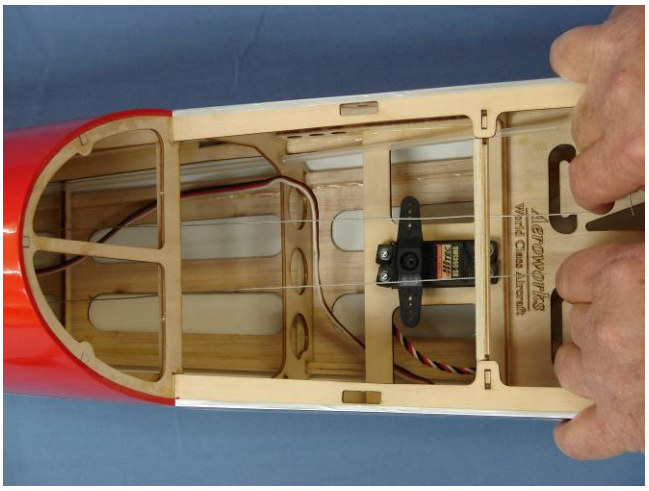
9. Feed one rudder cable through the pre installed cable exit tube in the rear of the fuse toward the front of the fuse. Repeat for other side.

Note: Loop or tape cable to fuse to prevent cable from being pulled into fuse

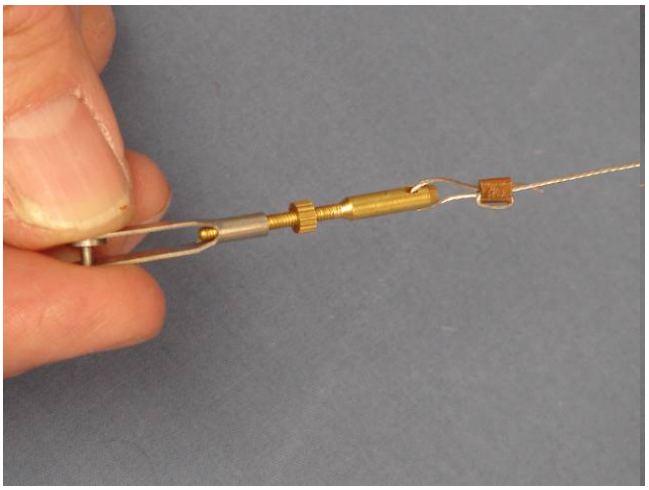


10. Pull the rudder cables from rear of fuse to the rudder servo tray.

    Note: Cables run parallel down fuse and do not cross each other.



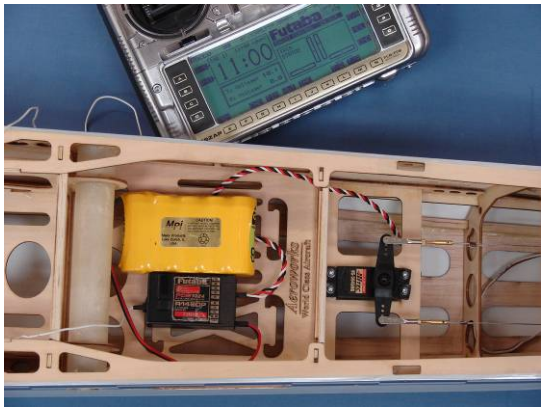
11. Assemble the pull-pull clevis and threaded coupler as shown below.



12. Install the clevises on the rudder servo arm.

13. Plug the rudder servo into the rudder channel of the receiver and power up. Turn on transmitter to center rudder servo. Ensure servo trim and sub trims are centered. Leave the radio on until pull-pull installation is finished.

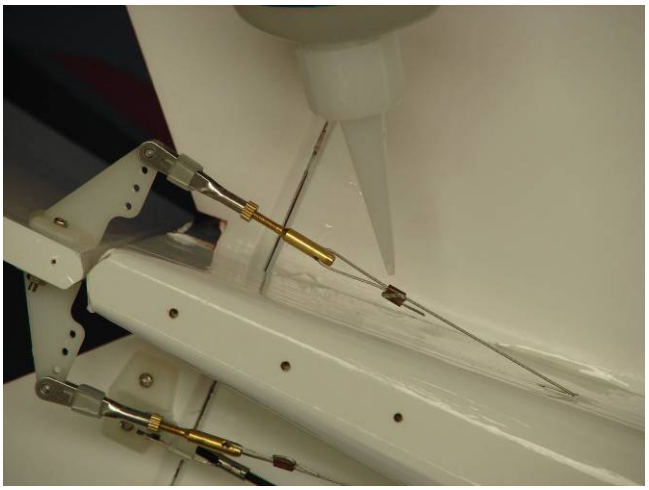
    Note: On metal geared servos use blue Loc tite for all Servo arm mounting screws



14. Assemble and install the clevises onto the rudder control horns.

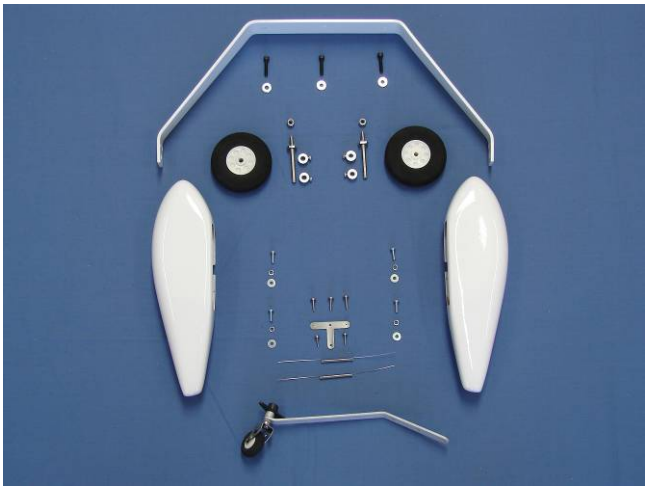
    Finished pull-pull assembly shown below.

15. A drop of thin CA may be applied to the swage tube to help secure the cable.

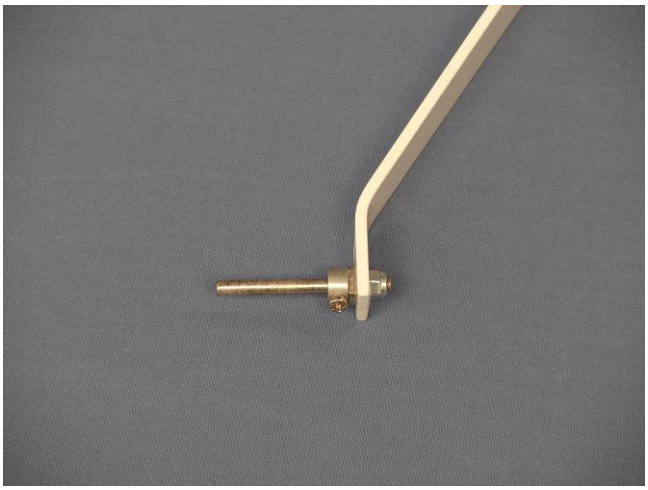


MAIN LANDING GEAR/ TAIL WHEEL/ WHEEL PANTS ASSEMBLY

1. Gather the landing gear parts as shown below. Landing gear strut, 3 6-32 mounting bolts, 3 flat washers, 3 lock washers, 2 wheel pants, 4 4-40 mounting bolts, 2 wheels, 2 axles assemblies, 4 wheel collars, tail wheel strut, 3 tail wheel mounting screws, steering tiller, 2 tiller mounting screws, and 2 steering springs as shown below.

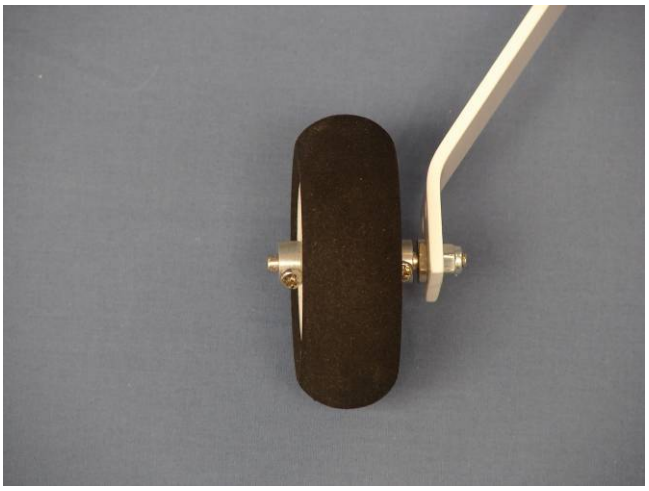


2. Install the axle onto the landing gear through the pre-drilled mounting hole.



3. Install the rear wheel collar about 2mm away from the axle back plate, install the wheel and then install the final collar.

   Hint: Use a small amount of blue loctite on the wheel collar screws to keep them in place.

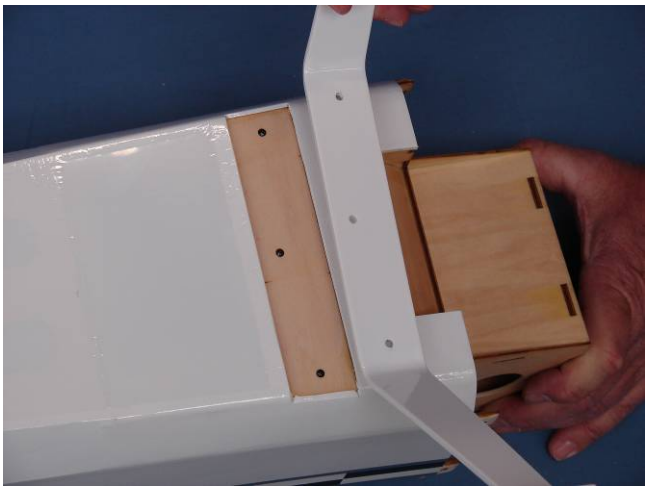


4. Install the wheel pants using the supplied 4-40 mounting bolts, lock washers and flat washers.

   Note: Use a small amount of blue locitite on the mounting bolts to keep them in place.

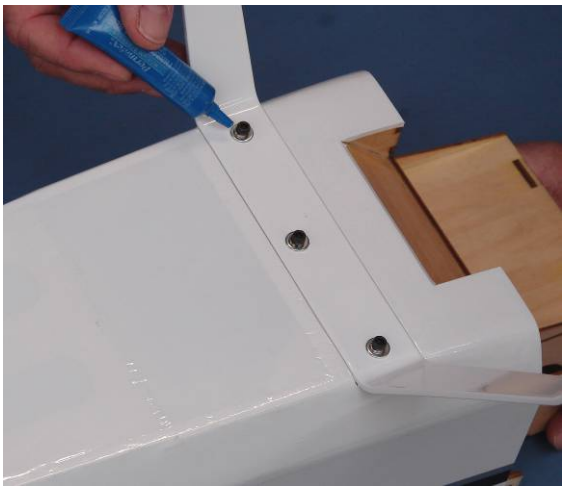
5. Install the landing gear with the straight edge towards the front and the tapered edge towards the rear.

   Hint: Mounting bolts have been staggered to ensure correct installation of the landing gear.

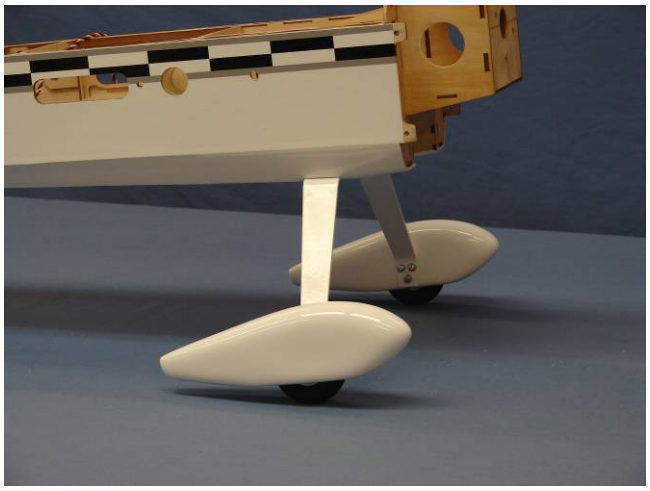


6. Use 3 6-32 mounting bolts, 3 flat washers and 3 split washers to install the gear.

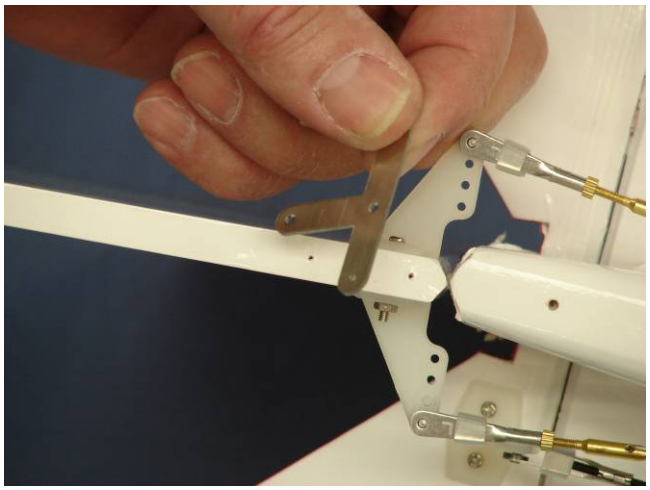
   Note: Use a small amount of blue locitite on t he mounting bolts to keep them in place.



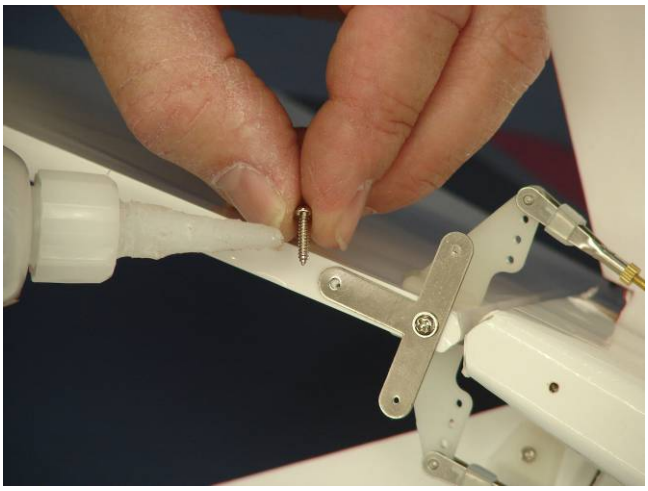
7. Main landing gear installation is now complete.



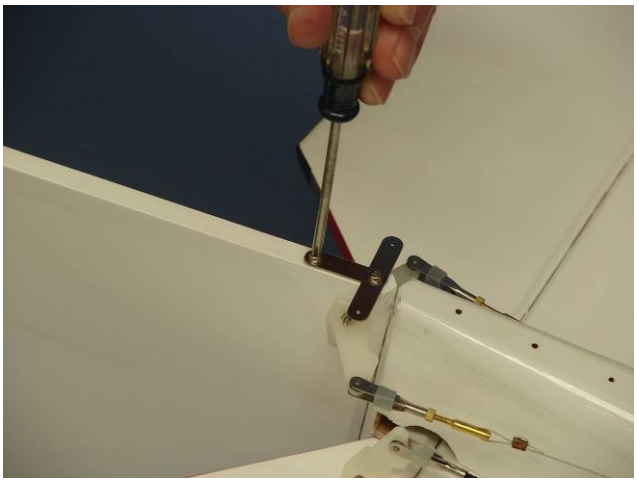
8. Align rudder tiller steering arm with pre drilled mounting holes at bottom of rudder.



9. Apply a drop of thick CA to the tiller arm mounting screws before inserting in the pre-drilled holes.



10. Mount the tail wheel steering tiller using two wood screws.



11. Install the tail wheel using three wood screws. Use thick CA to secure the mounting screws.

12. Attach the rudder steering springs to the rudder tiller arm and tail wheel steering arm.

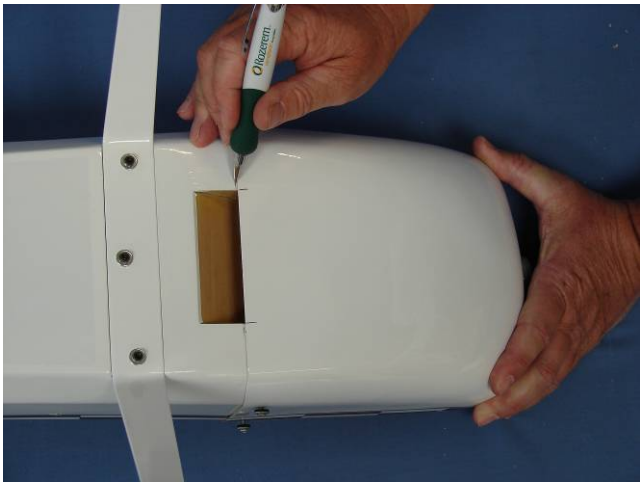
13. Tail wheel assembly is now complete

COWL PREPERATION FOR GLOW ENGINE INSTALLATION

Note: If Installing an electric motor go to page 35

1. Align cowl to fuse and bolt in place. Mark the location of the air exit from the fuse onto the cowling.

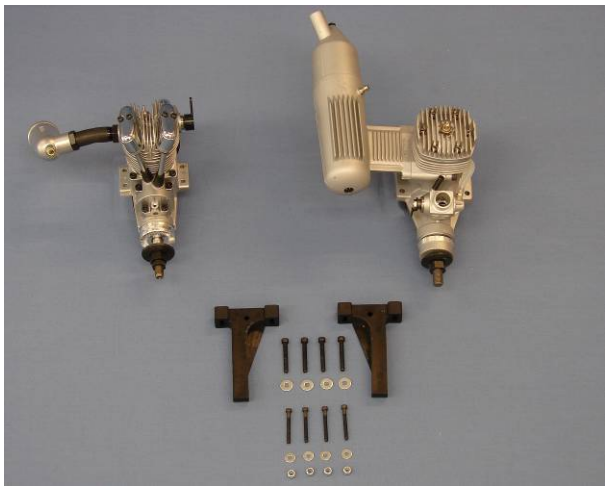
   This step will help with the proper alignment of the template material during the cowl installation steps shown later in this manual



ENGINE AND THROTTLE SERVO INSTALLATION

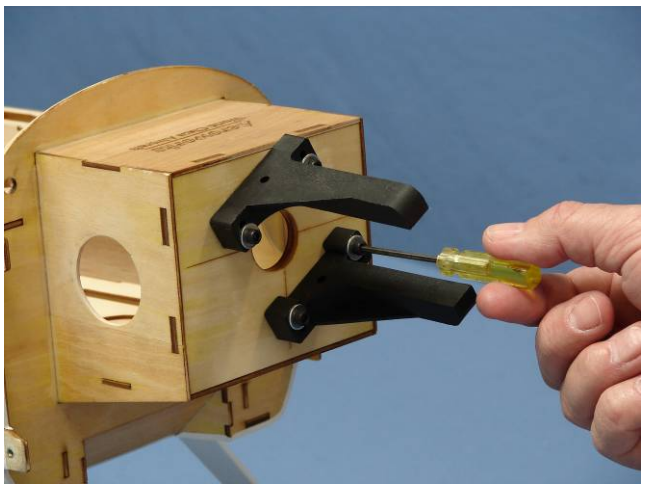
2. Gather the glow engine of your choice, 8 6-32 bolts 8 3.5mm flat washers, 4 3.5mm split lock washers and 4 6-32 lock nuts.

   Note: An OS .61 FX 2 stroke is shown as well as a Satio .82 4 stroke depending on the choice of engine the installation may differ slightly.

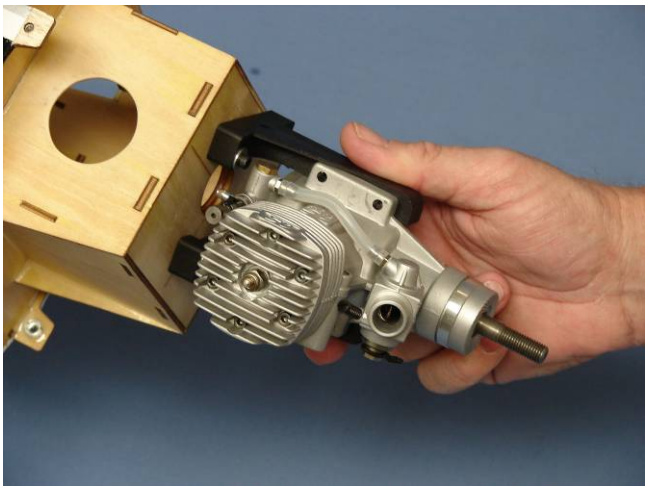


2 STROKE ENGINE INSTALLATION

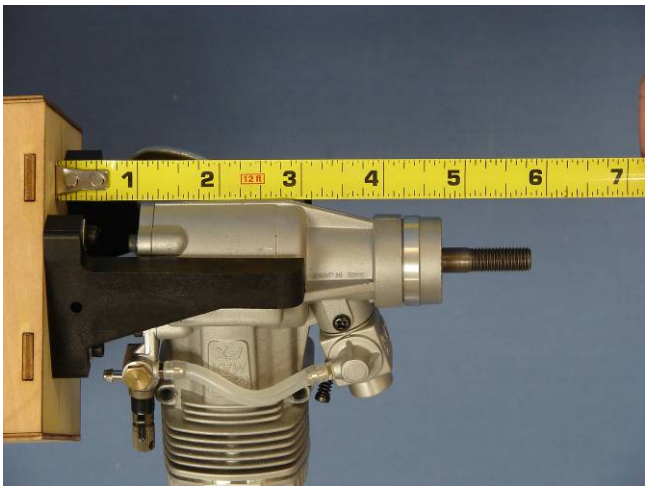
3. Install left and right side of the engine mounting rails using the supplied 6-32 bolts, flat washers, and split lock washers. The blind nuts have already been installed in the firewall.



4. Set the engine in between the left and right mounting rails. It may be necessary to clamp the motor in place for the next few steps.

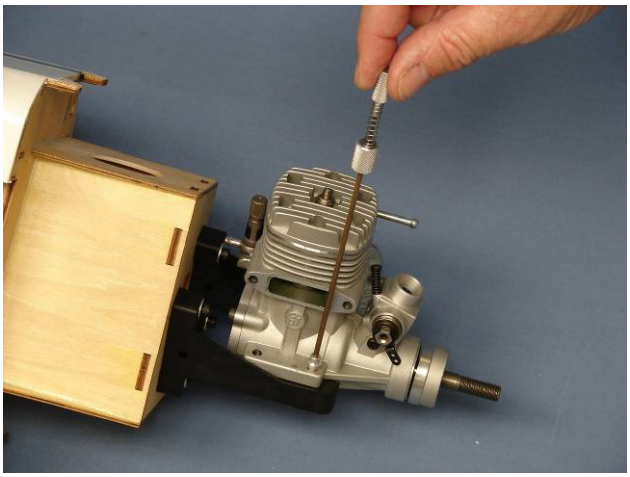


5. Adjust the motors position until the thrust washer is 4 3/4” away from the fire wall.



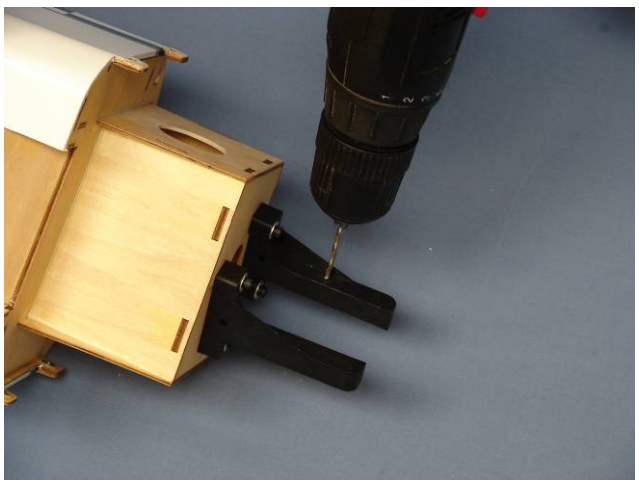
6. Mark the position of the engine mounting holes on the engine mount. Mark the center of each engine mounting hole
with a center marking tool or beveled pencil or pen. Ensure the mark is in the center of the engine mounting hole.

   Note: We recommend the Great Planes DeadCenter Engine Mount Hole Locator **Part #GPMR8130**

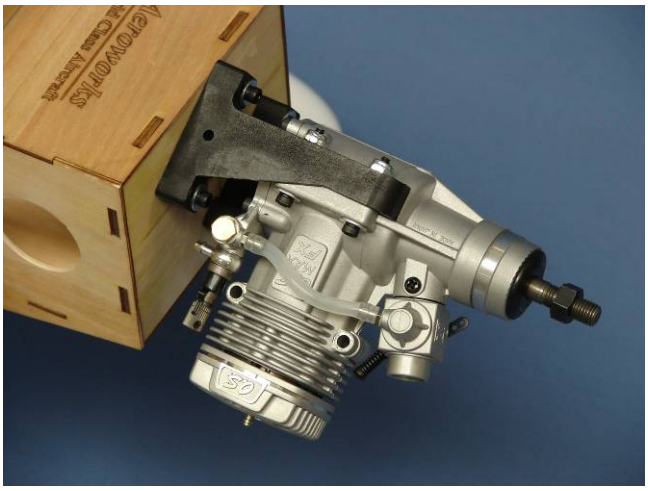


7. Use a 1/8” drill bit to drill the engine mounting holes into the engine mount.

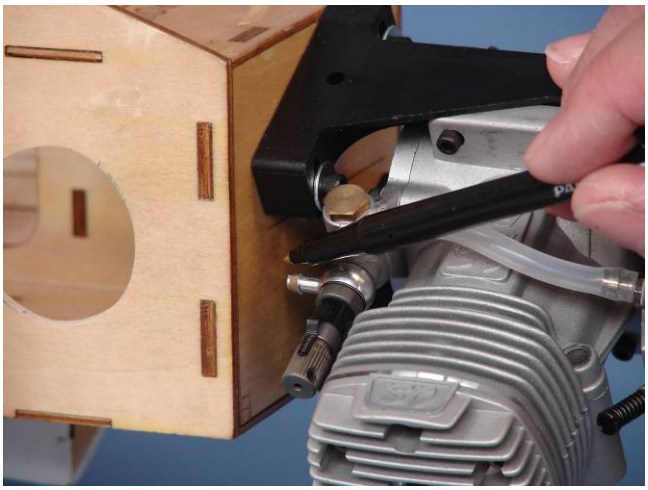
   Note: Drill the engine mounting holes as straight as possible. Use a drill press if available.



8. Use 4 6-32 bolts, 4 flat washers, and 4 6-32 lock nuts to install the engine to the mount.

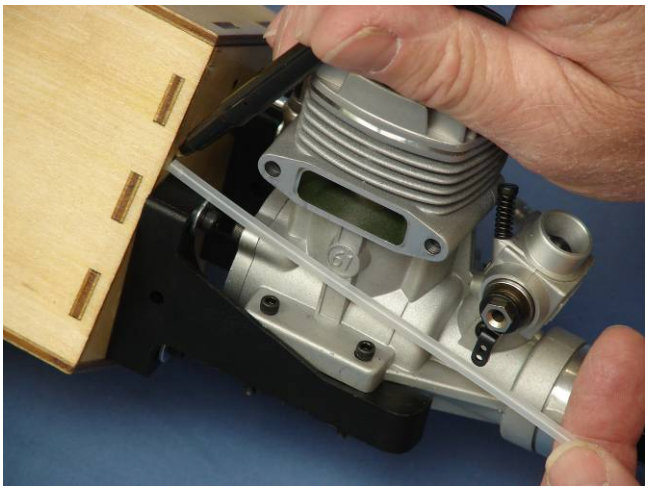


9. Mark the location for the fuel line to pass through the firewall.

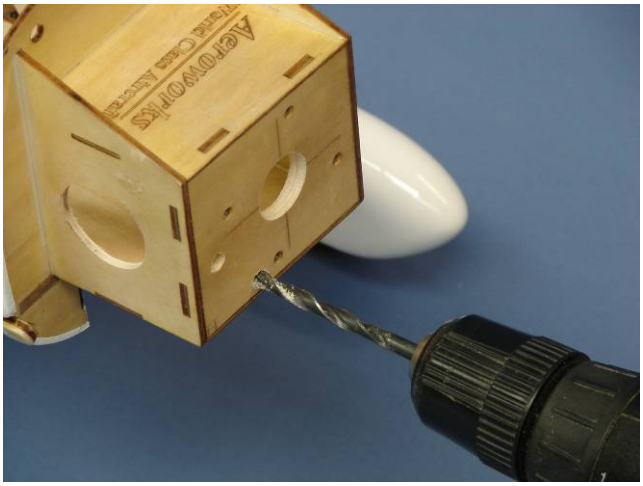


10. Trace the size and location of the throttle push-rod guide tube onto the firewall.

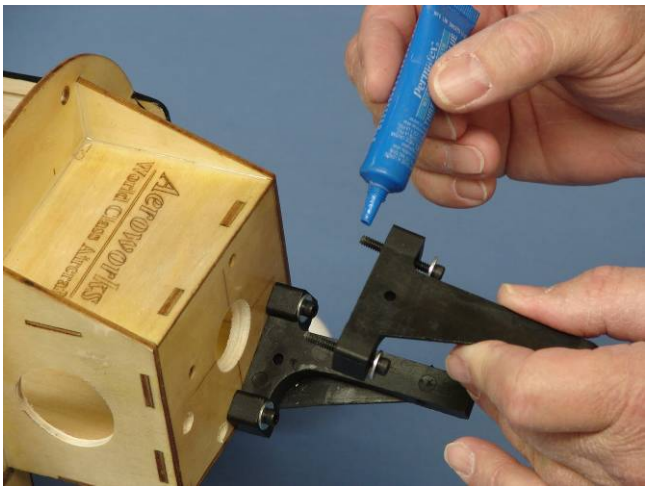
    Note: Insure throttle pushrod is lined up with throttle arm of the carb.



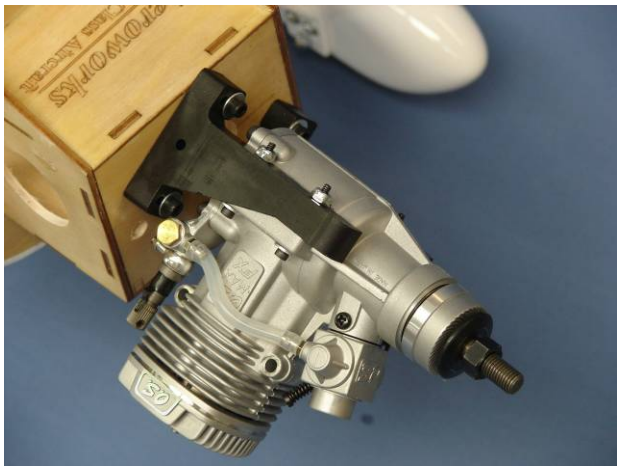
11. Remove the engine and use a drill bit to drill the holes for the fuel line and the throttle pushrod guide tube



12. Reinstall the engine mounts using a small amount of blue loctite, this will keep the bolts in place.

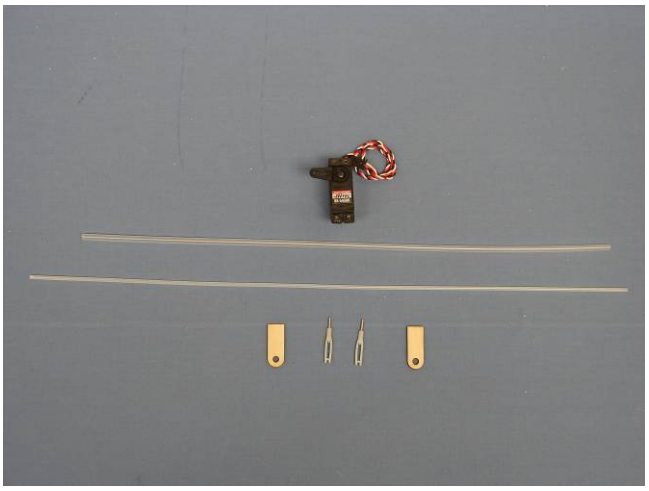


13. Final 2 stroke engine assembly shown below.



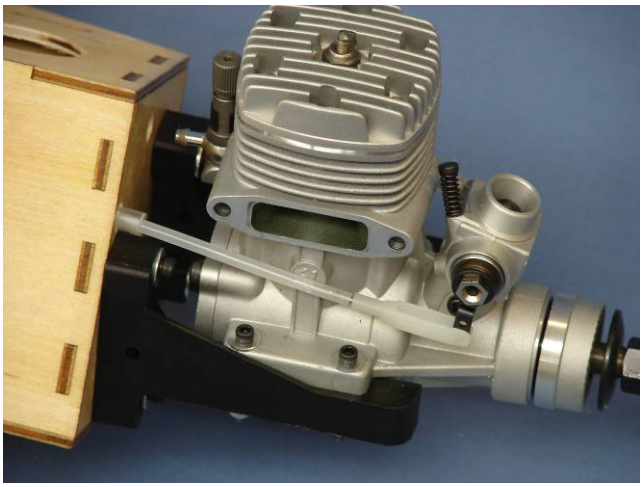
Throttle servo installation for 2 stroke engine

1. Gather the throttle servo, two plywood pushrod guides, two nylon clevises with threaded inserts, pushrod guide tube, and throttle pushrod.



2. Install the throttle servo on the right hand side of the fuse. The mounting holes have been precut for you.

3. Install the throttle pushrod guide tube into the hole drilled in a previous step and secure in place with thick CA. Slide the pushrod through the guide tube and install the threaded rod with the clevis. Attach the clevis to the carburetor.



4. Install the remaining threaded rod and clevis on the other side of the throttle pushrod. Attach the clevis to the throttle servo.

5. Install the precut foam block at the rear of the firewall. Glue or double sided tape may be used to secure the foam block to the tank floor.

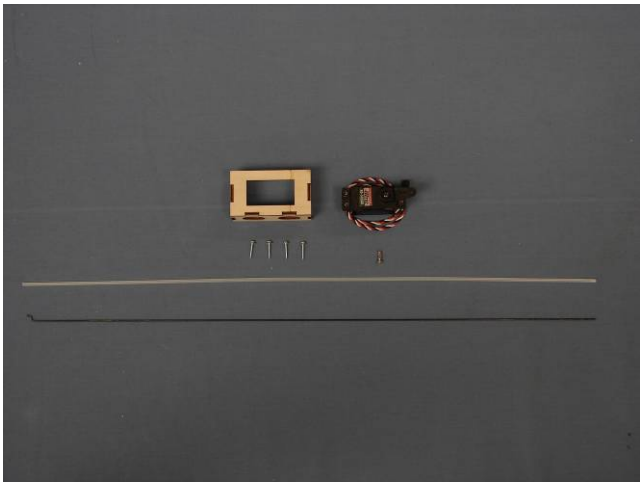
   Note: It will be necessary to notch the foam block for the throttle pushrod.

6. Route the included zip ties through the precut tank mounting slots.

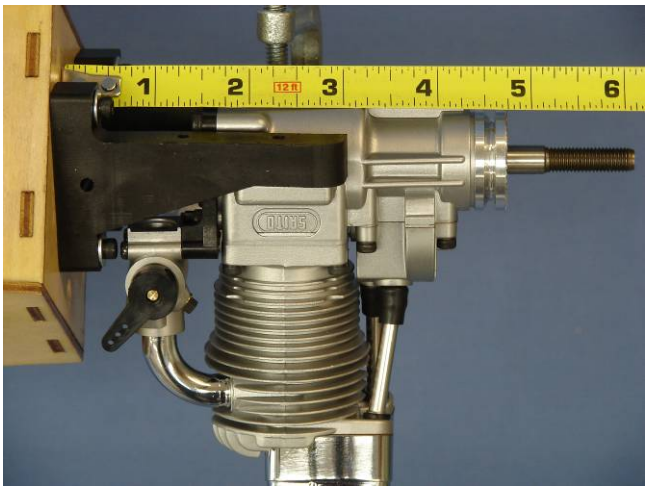
7. Place the 6mm x 130mm x 60mm foam pad onto the tank floor. It will be necessary to cut foam along side of throttle pushrod.

4 Stroke engine and throttle servo installation

1. Gather the throttle servo, plywood servo tray, easy connector, pushrod guide tube, and throttle pushrod with Z-bend at one end.

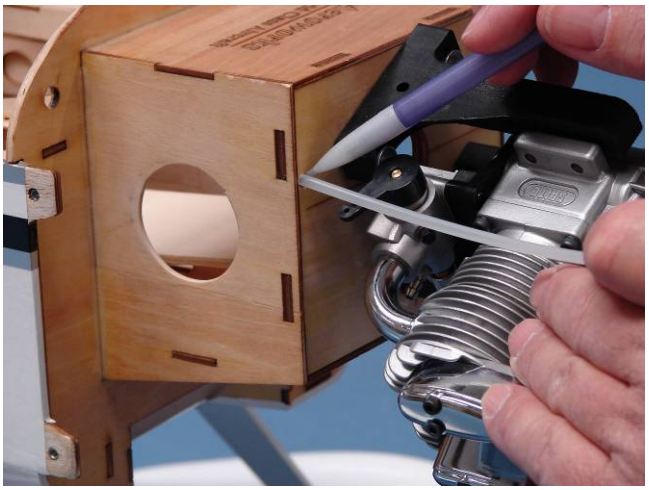


2. Install the engine using the same method as the 2 stroke installation. The correct distance from the firewall to the thrust washer is 4 3/4”.

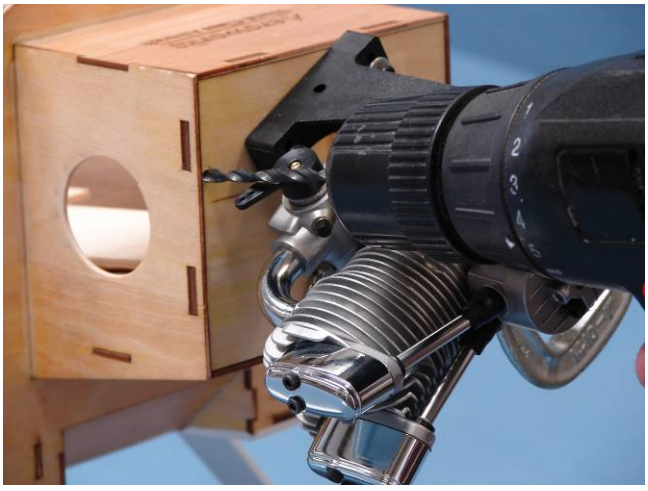


3. Trace the size and location of the throttle push-rod guide tube onto the firewall.

   Note: Insure throttle pushrod is lined up with throttle arm of the carb.

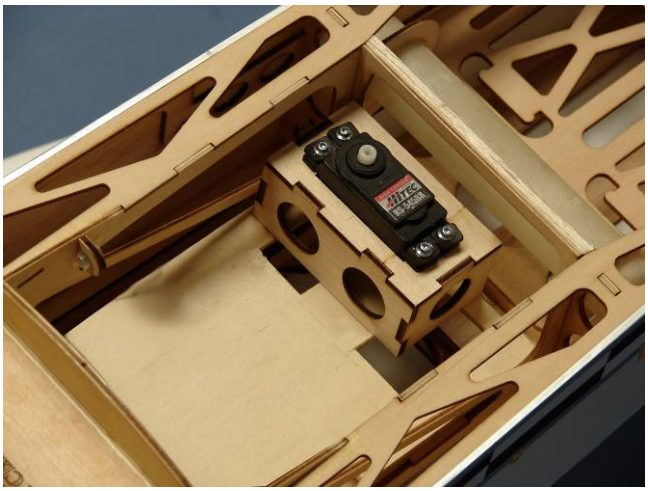


4. Use a drill bit to drill the hole for the throttle pushrod guide tube

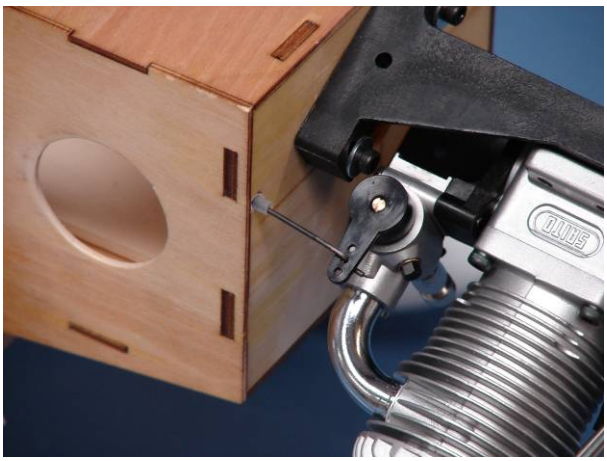


5. Glue the throttle servo mount to the tank floor and F2. Use 5 minute epoxy for this step. Install throttle servo to tray.

   Note: Insure that the servo mount does not interfere with the fuel tank.



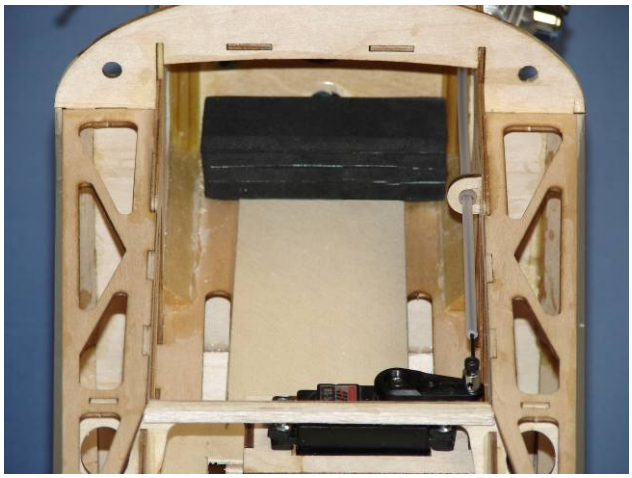
6. Install the pushrod guide tube and throttle pushrod onto the engine using the pre-bent Z-bend.



7. Attach the pushrod to the servo using the supplied easy connector.

8. Secure the pushrod to the side of the fuse with the included plywood guides.

9. Install the precut foam block at the rear of the firewall. Glue or double sided tape may be used to secure the foam block to the tank floor.



10. Route the included zip ties through the precut tank mounting slots.

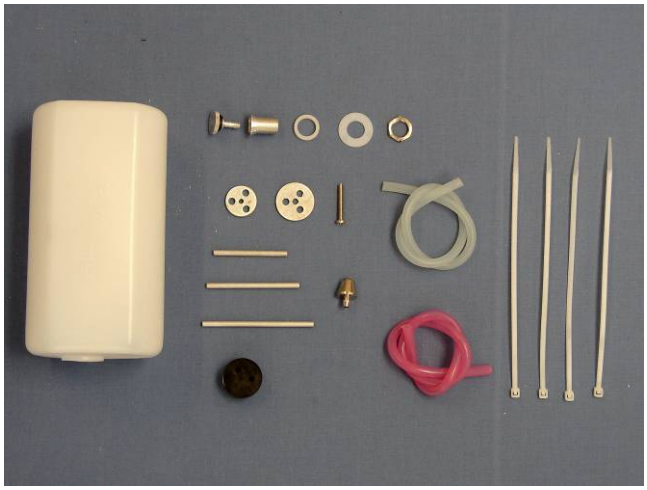
11. Place the 6mm x 130mm x 60mm foam pad onto the tank floor.

FUEL TANK ASSEMBLEY AND INSTALLATION

1. Gather the fuel tank parts as shown below. Fuel tank, hardware, and fuel tubing.

   Hint: We have supplied two colors of fuel line . This will make it easier to reference after installation.

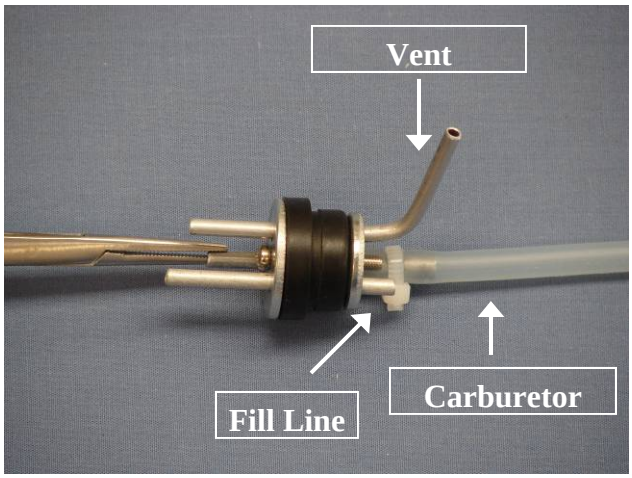
   Note: Fuel filler dot not included but available through Aeroworks.



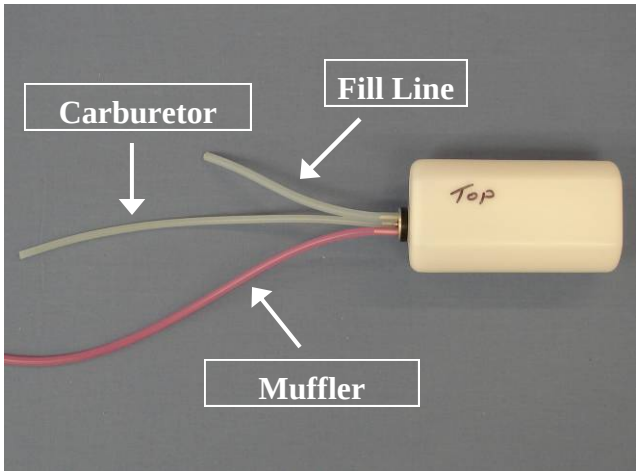
2. Assemble the stopper as shown below. Use Zip ties to secure the pick up line to the tubing as well as to the clunk.

3. Finished stopper shown below.

   Note: Fill line will also be used to defuel tank, lifting tail as high as possible will allow you to completely drain the tank.

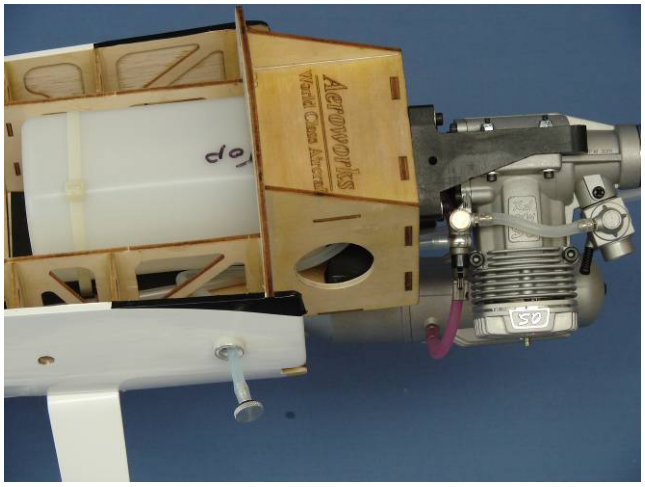


4. Install the supplied fuel line below. Two colors have been included to aid in identifying were the fuel line will go.

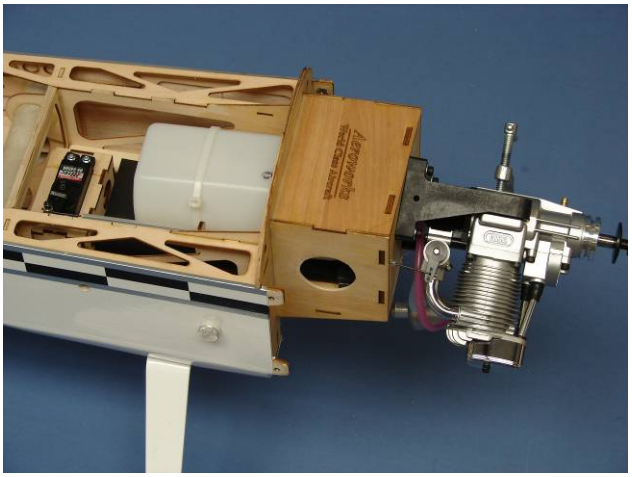


5. Install the fuel filler dot (not supplied) higher than the tank to keep the fuel from draining out during refueling.

6. Install the fuel tank using the nylon tie installed earlier.



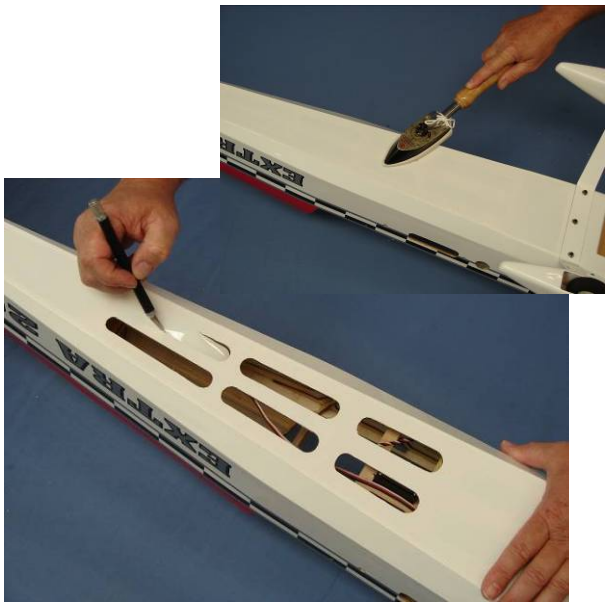
7. Finished tank installation shown below.



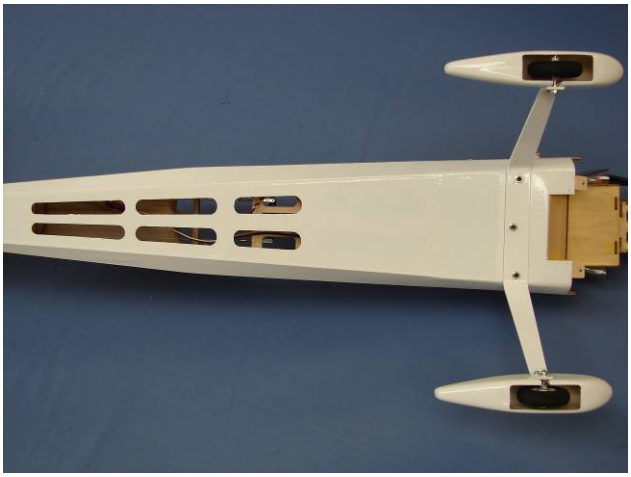
Electric motor, battery, BEC and ESC installation

1. Use a sharp X-Acto knife to remove the covering from the hot air exits.

   Note: Use a covering iron to seal the covering before removing any material.

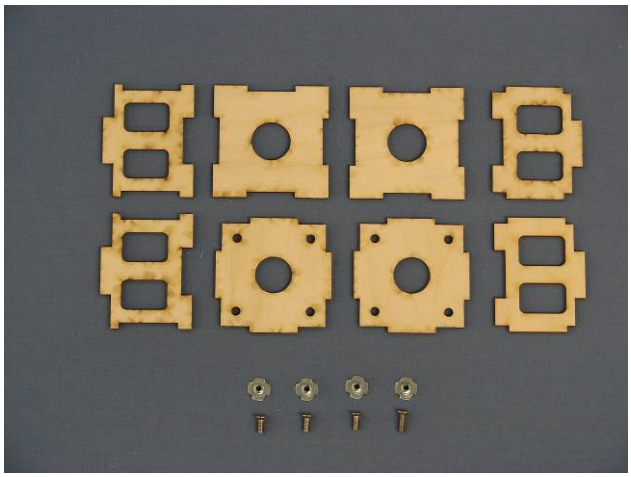


2. Final hot air exit holes shown below. It is recommended to go over the edges and seal them down with a covering iron.



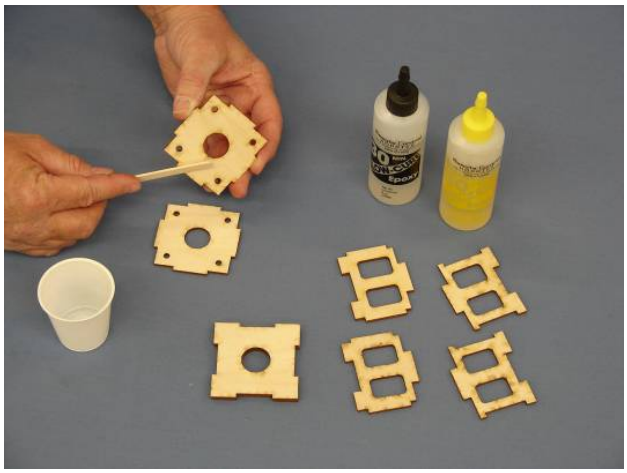
3. Gather the laser cut engine mounting block pieces (not supplied) 4 6-32 blind nuts, 4 6-32 motor mounting bolts.

   Note: Motor mount available from Aeroworks



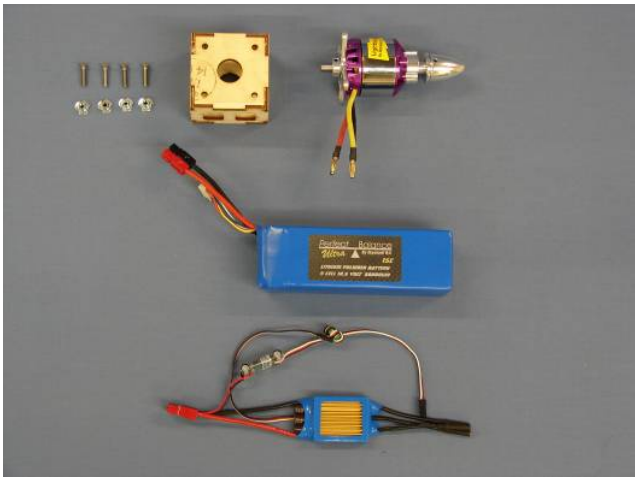
4. Use 30 Minute Epoxy to assemble the engine mounting block.

   Hint: Sand the edges of each part and any area that has been laser cut for a stronger glue bond.

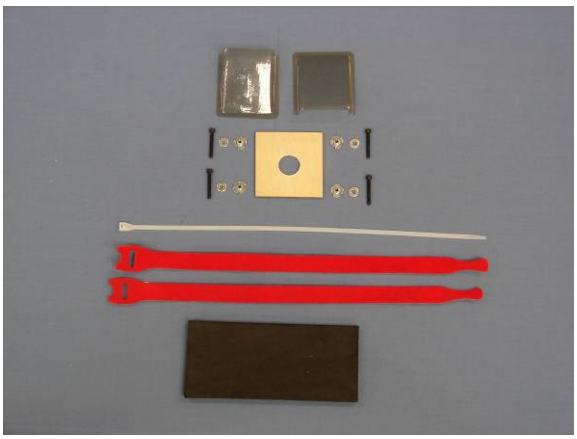


5. The following electric motor installation will use the skyshark lightning 50 power package electric package available through Aeroworks, other installations may differ slightly.

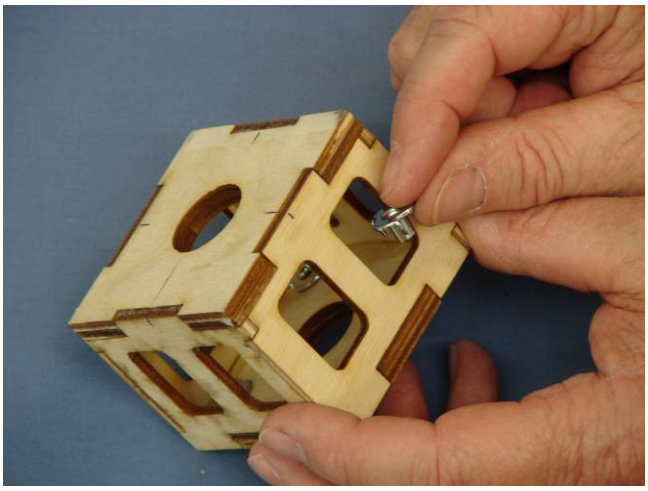
   Gather the motor mount, Electric motor, 5cell 5000mah battery, 60A ESC, 3A BEC



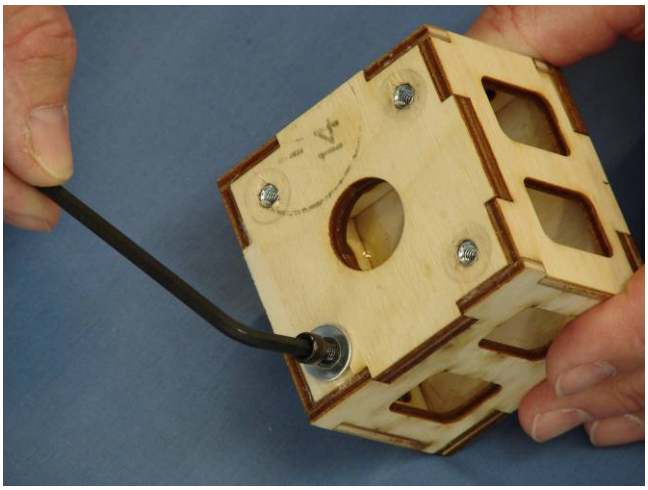
6. Gather the supplied mounting bolts, plastic air inlets, spacer plate, Velcro one wrap straps, nylon tie, and foam pad.



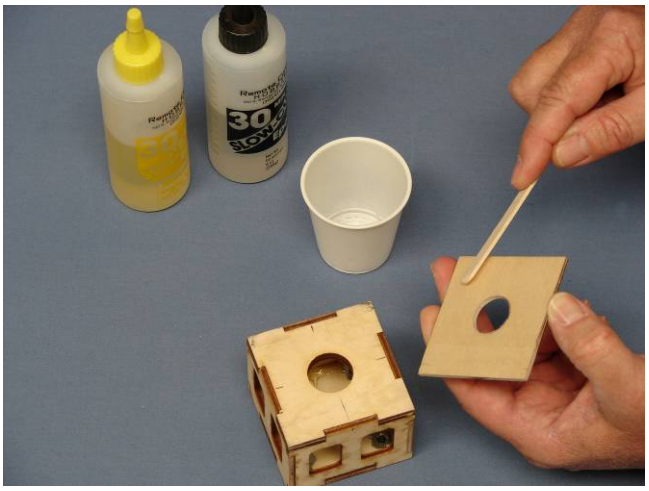
7. Install the 6-32 blind nuts into the back of the motor mount.



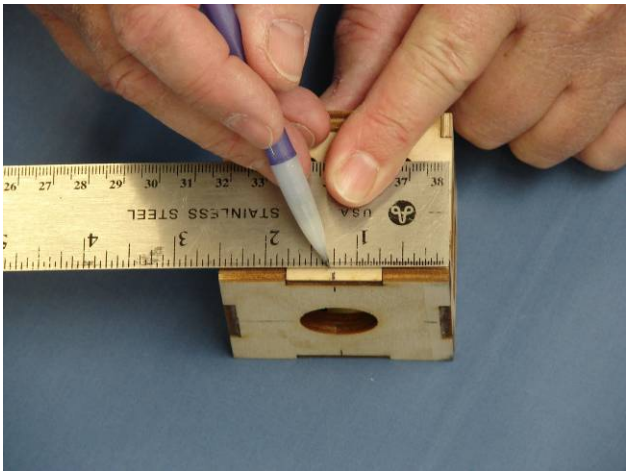
8. Use a bolt and washer to pull the blind nuts tight to the wood.



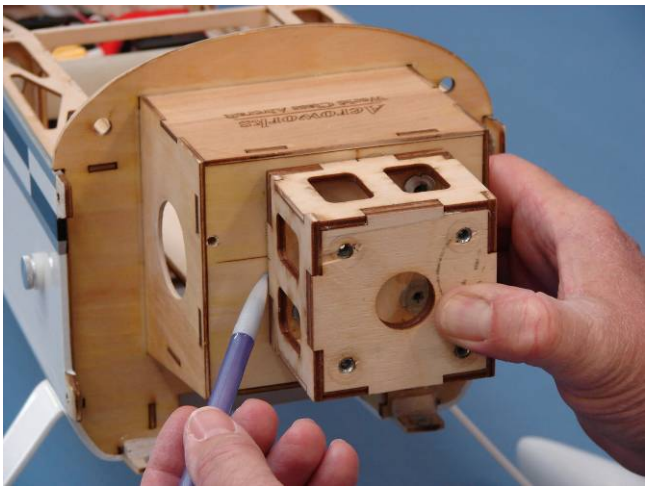
9. Glue the supplied spacer plate to the back side of the motor mount.



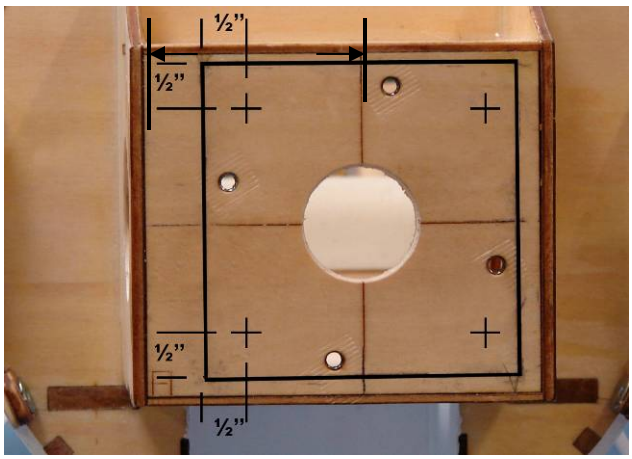
10. Measure and mark the center of the motor mounting block. Center mark all four sides that will mount to the firewall.



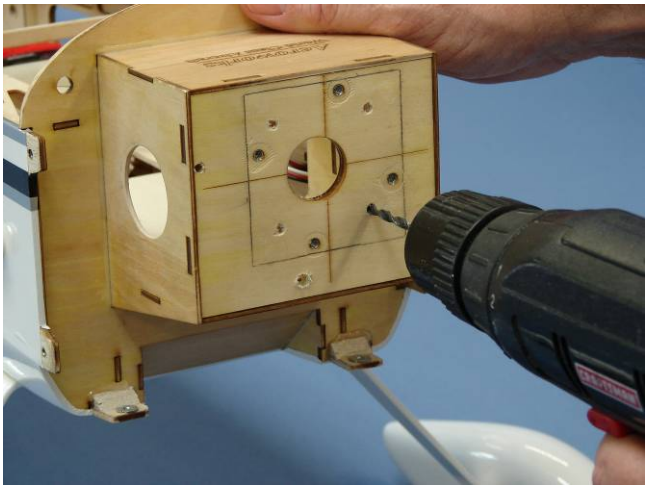
11. Align the center marks made in the previous steps with the laser etched motor thrust marks on the firewall. Make sure the mount is aligned properly and trace all the way around the mount. Make sure the lines can be seen clearly.



12. Measure and mark the four mounting holes for the motor mount block. A diagram is shown below to aid in the location of the holes.

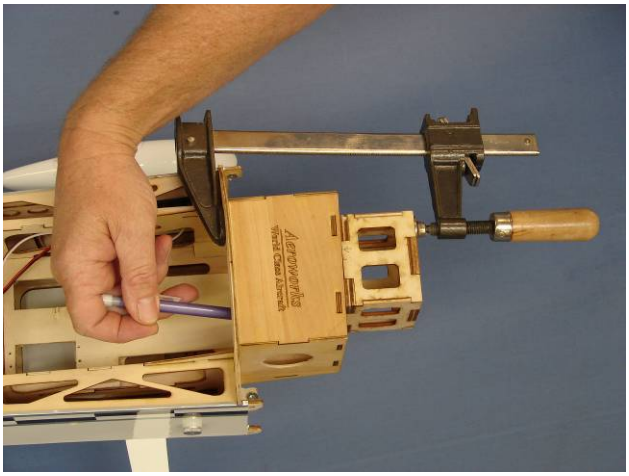


13. Drill the 4 mounting holes using a 5-32 drill bit.

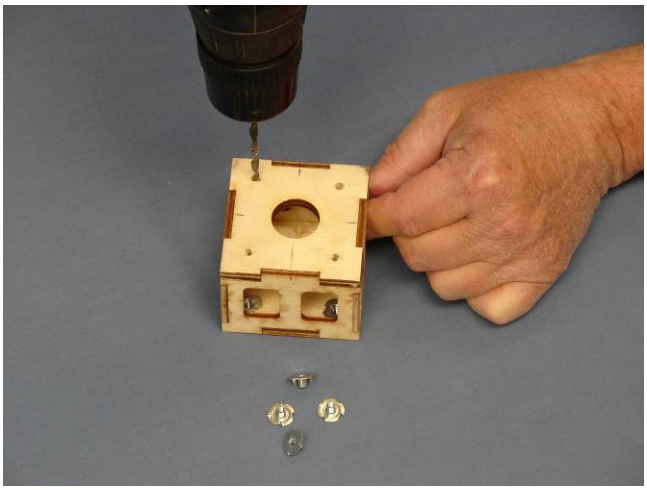


14. Clamp the mounting block to the firewall and use a pencil to mark the location of the 4 mounting holes.

    Note: Make a reference mark on the firewall and mounting block to aid in alignment during re-installation.

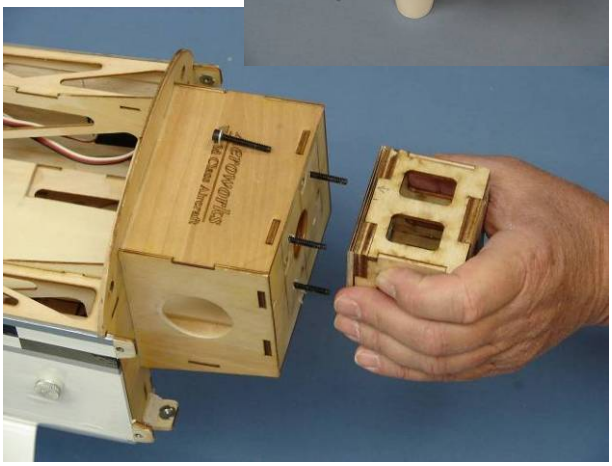


15. Drill the 4 mounting holes using a 5-32 drill bit. Install the 4 6-32 blind nuts using the same method as described steps 7 and 8

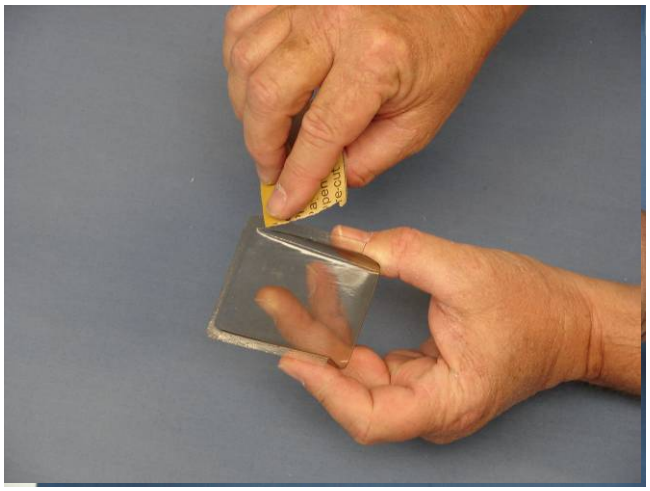


16. Bolt the motor mounting block to the firewall.

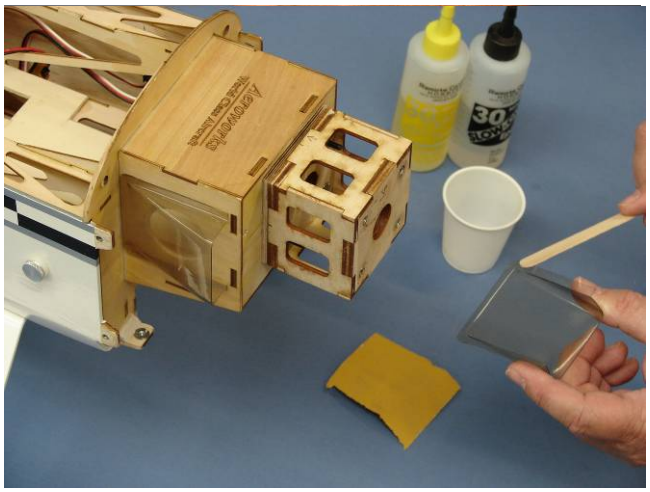
Note: use 30 minute epoxy to securely glue the motor mount to the fire wall



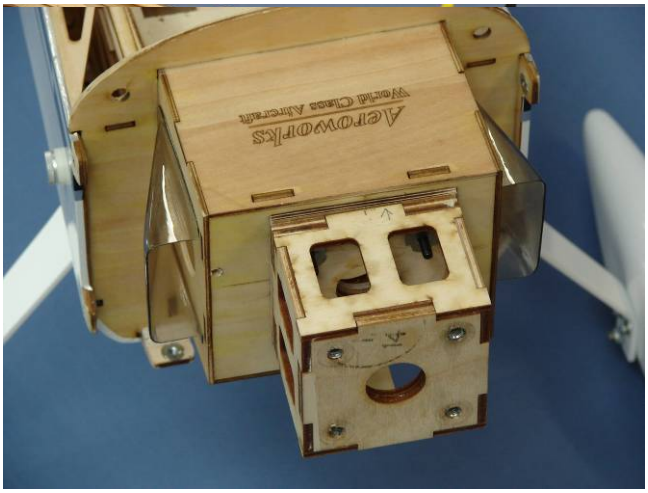
17. Gather the 2 supplied air inlets. Use 200 grit sand paper to lightly scuff the gluing surface for a stronger bond.



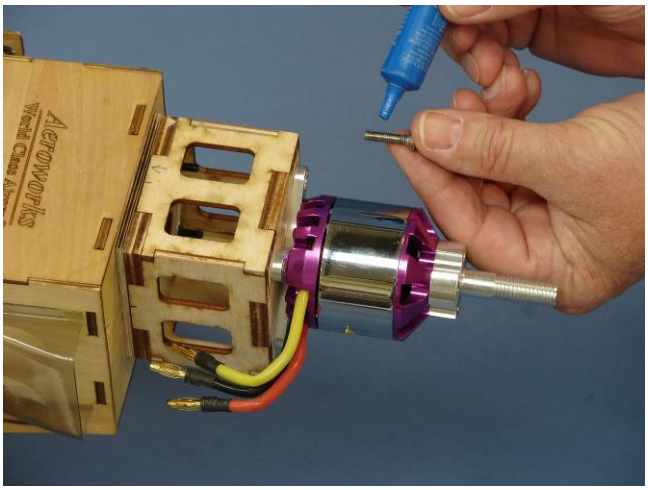
18. Use 30 minute epoxy to glue the air inlets in place. Use tape to secure the inlets to the motor box while the glue cures.



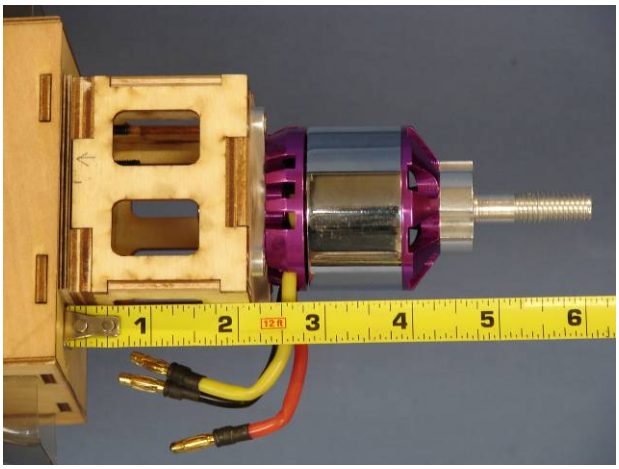
19. Finished air inlet installation shown below.



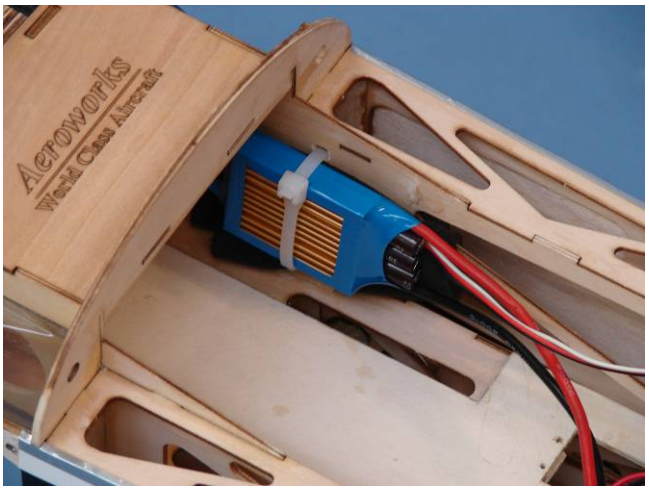
20. Use the motor mounting bolts (not supplied) to mount the motor. Use blue loctite to keep the mounting bolts secure.



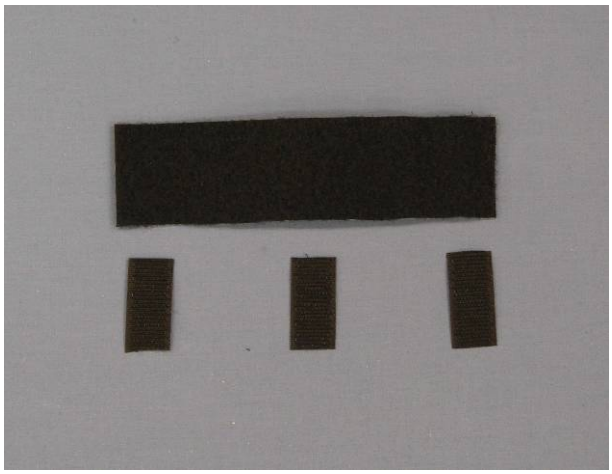
21. Check the distance from the firewall to the prop adaptor, the correct distance is 4 3/4”.



22. Install the ESC in an area that will provide adequate cooling. Refer to ESC instruction for specific mounting information.

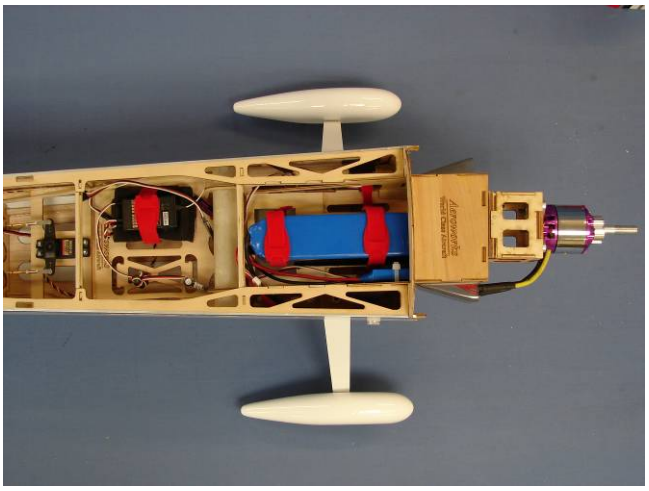


23. Use adhesive backed Velcro (not supplied) to secure the battery. Use 3 pieces of the hook side measuring 37mm x 20mm mounted to the battery and a large piece measuring 40mm x 220mm on the battery tray floor.



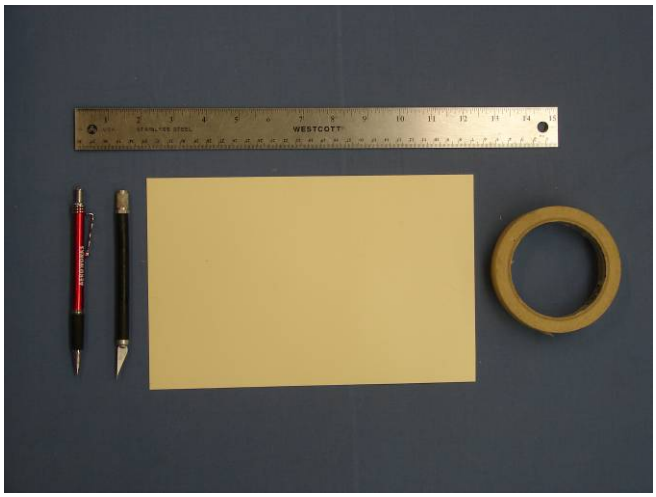
24. Install the battery and use 2 One Wrap Velcro ties to firmly secure the battery to the tray.

25. Final electric installation shown below.

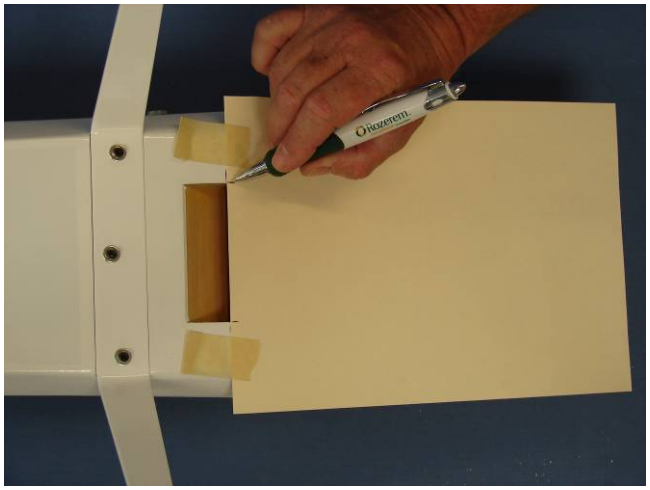


Cowl Installation

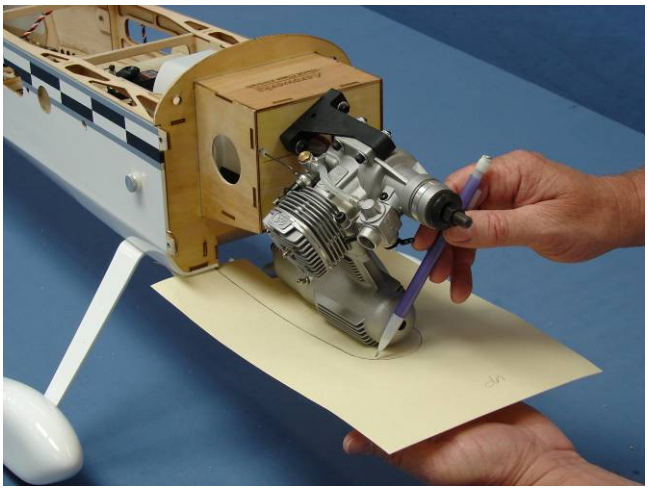
1. Gather the materials as shown below. Template material, hobby knife, ruler, tape, marker and pencil.



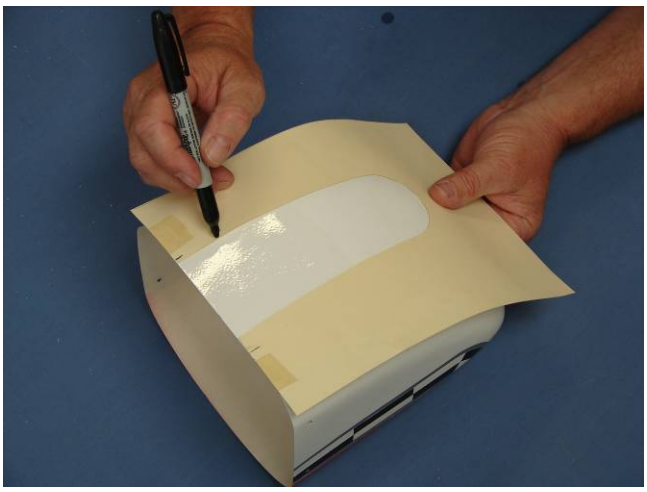
2. Tape template to the fuse and mark the location of the air exit from fuse onto template.



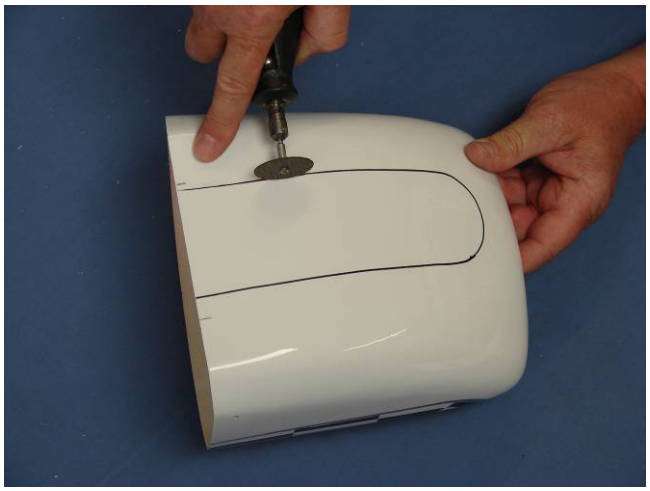
3. Flip the airplane over and trace the muffler shape onto the template, and leave 1” of space between the cutout and the muffler.



4. Cut out the template using the line marked in the previous step. Tape template to cowl aligning air exit mark on template with alignment marks made on cowl completed in step #1 on page 24. Trace cut out onto cowl using a felt tip pen.

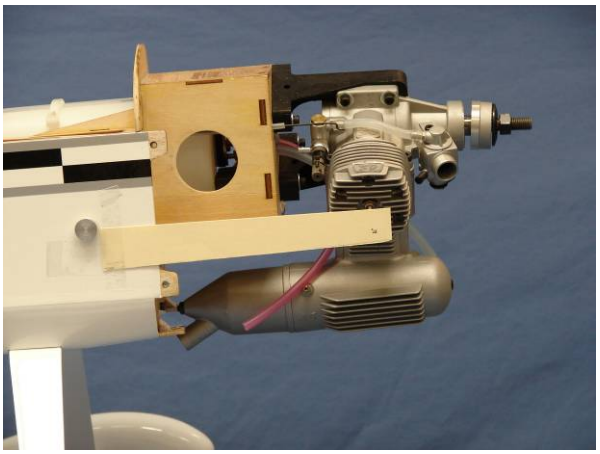


5. Use a Dremel tool to cut out the cowl.

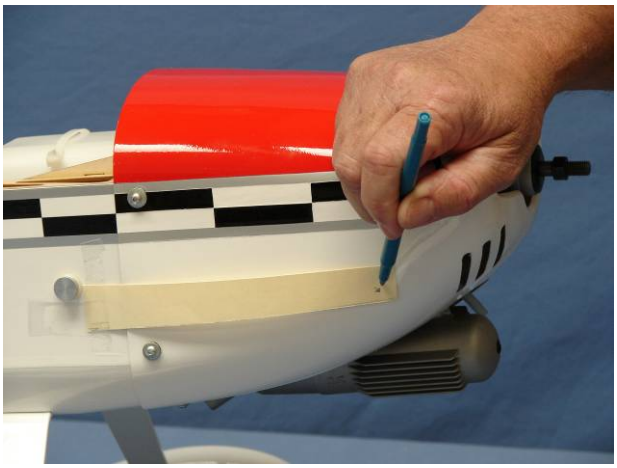


6. Use the supplied air inlet template to mark the front air inlets. Use a Dremel tool to open up these holes as well.

7. Cut a strip of the template long enough to reach the glow plug on the engine. Tape this strip to the side of the fuse and mark the location of the plug. Also use this method to locate the needle valve adjustment screw.



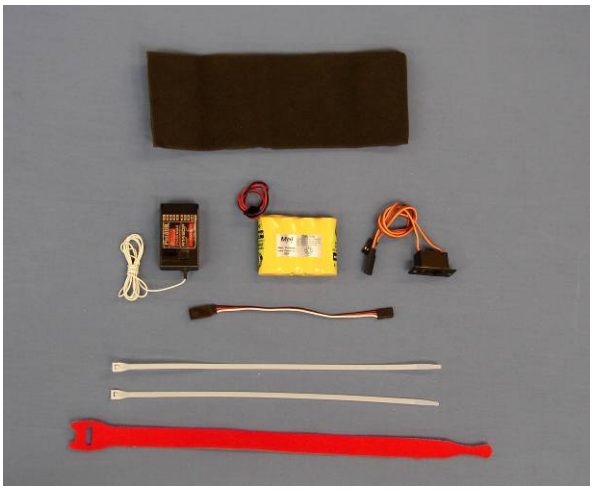
8. Bolt the cowl in place and slide the template over it. Use a pen to transfer the location of the cut out onto the cowl.
9. Cut out the marked area just like the previous steps.



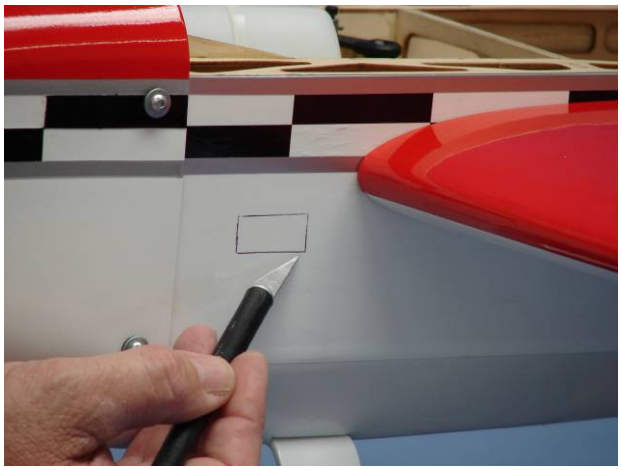
10. Finished cowl installation shown below.

Radio Installation

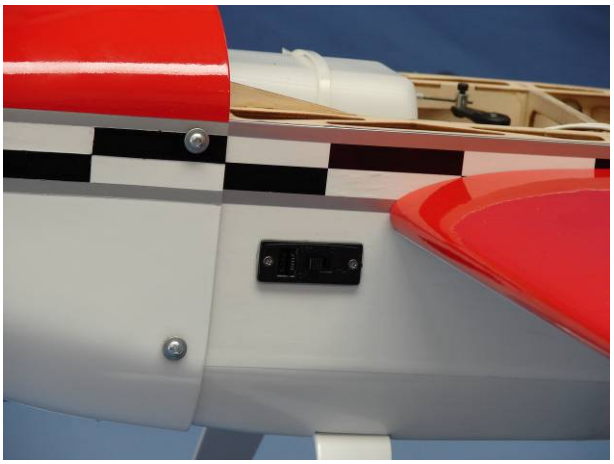
1. Gather the receiver, receiver battery, switch, 6” extension 2 nylon ties, foam pad, and Velcro One Wrap Strap as shown below.



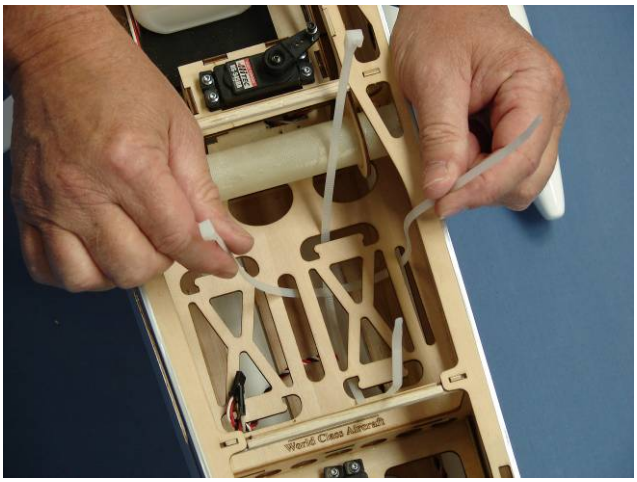
2. Mark the switch location on the fuse as shown making sure that it does not interfere with the wing location.
3. Use an modeling knife to cut out the switch opening.



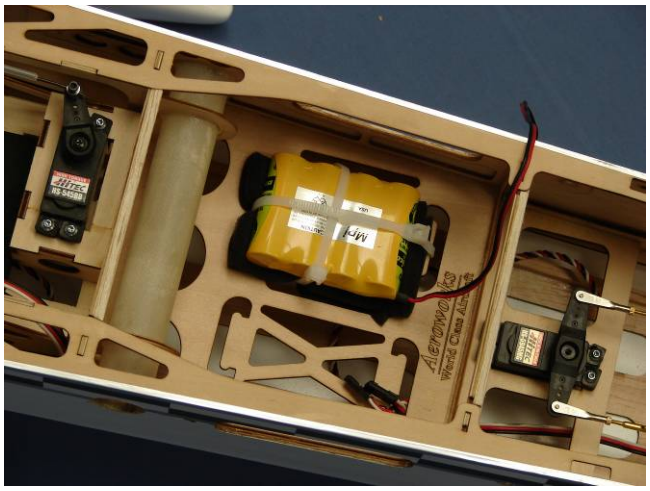
4. Final switch installation shown below.



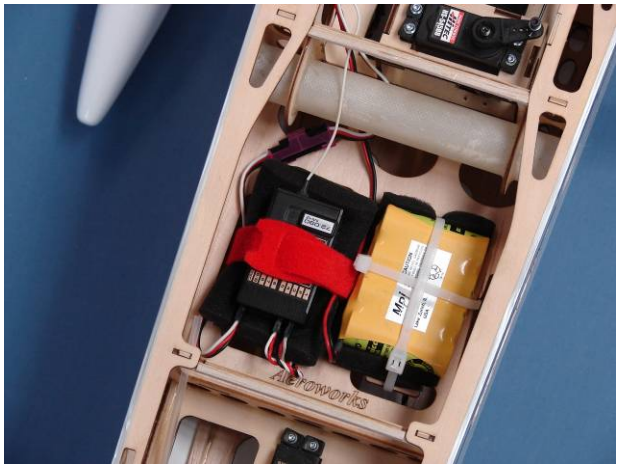
5. Route the included nylon ties into the precut mounting holes as shown below for the receiver battery.



6. Mount the receiver battery with nylon tie and foam padding.



7. Mount the receiver using foam pad and a Velcro One wrap Strap.



8. Install the receiver antenna in the pre-mounted antenna tube. Push the antenna into the antenna tube, be sure that the antenna is all the way into the tube.

Note: Placing baby powder on the antenna will aid in sliding it through the tube.

9. Place tape on the antenna and tube, this will keep the antenna from backing out of the tube due to engine vibration.

Decal installation

1. Decals supplied with the kit may vary from the photos below. Decal installation instructions are for reference purposes only.

   Gather supplied decals, transfer tape, ruler, scissors, hobby knife, plastic squeegee or credit card, Windex or Application fluid like ***Rapid Tac***. Also, a solution of 1 drop of dish detergent to a cup of water sprayed on the model will assist in proper positioning.

Note: Clean surface and tighten all covering before any decals are applied.

2. Factory placement of decals shown.

3. Use a straight edge and a hobby knife to separate the decals from the rest of the decal sheet.

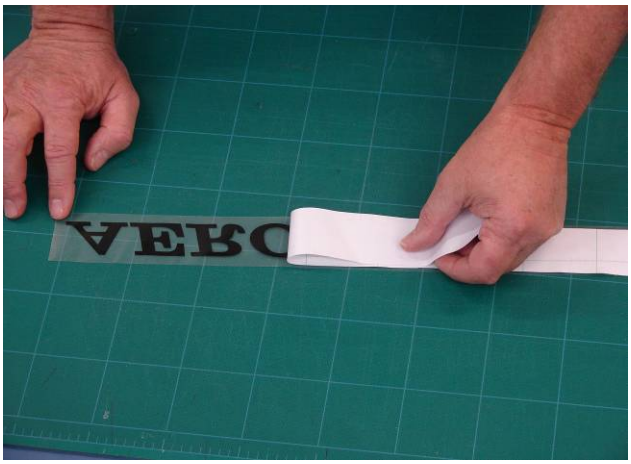
4. Cut a strip of transfer tape the same size as the decal cut in the previous step.

5. Peel the backing from the transfer tape.

6. Apply the transfer tape on top of the decal. The adhesive side should contact the decal itself.

7. Firmly press the transfer tape onto the decal.

8. Peel the backing away from the decal.



9. Spray the area with application fluid before installing the decal to allow a longer working time and aid in positioning the decal.

10. Apply the decal onto the surface.

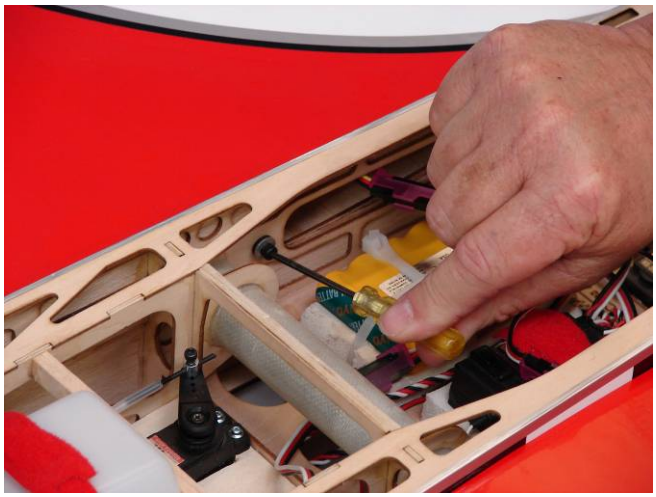
11. Using a plastic squeegee or credit card. Spread decal smooth and remove all excess application fluid. Let decal set until dry enough to be able to remove transfer tape with out removing decal. Do not leave until completely dry or transfer tape will be difficult to remove.

12. Pull transfer tape from top of decal. Take care not to pull away or damage decal.

13. Finished decal installation. Work slowly and carefully and you will be rewarded with a beautifully finished model.

PRE-FLIGHT PREPARATION

1. Slide the wing tube in the fuse wing tube sleeve. Slide the wings on the wing tube and plug in the aileron servo connectors. Slide the rubber backed washers on the wing mounting bolts and insert bolts through the fuse side and into the wing root blind nuts. Tighten snugly but do not over tighten and crack the fuse or wing root wood.



2. Mount the cowl using the cowl mounting bolts and rubber backed washers. The rubber backed washers are to prevent the fiberglass cowl from cracking and to prevent mounting bolts from loosing from normal engine vibration.

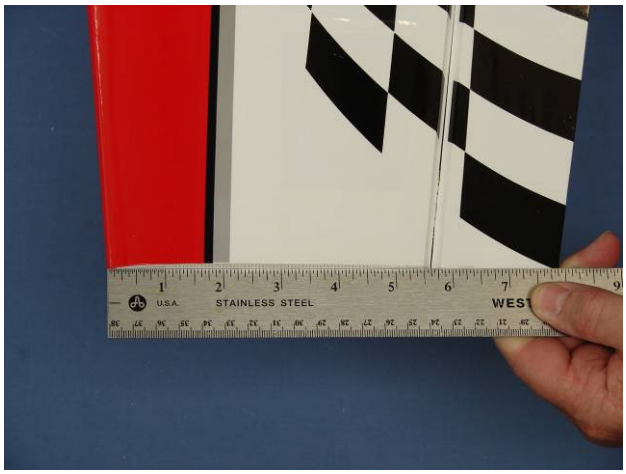
3. Slide the rubber backed washers on the hatch mounting bolts and insert bolts through the hatch mounting holes and into the fuse blind nuts. Tighten snugly but do not over tighten and crush the hatch or the fuse sides.

CENTER OF GRAVITY - CONTROL THROWS

Center of Gravity (C.G.)

2 1/4”
Back from the wing Leading Edge
measured at the wing tip

Warning
Do not skip this step!



2. Balance the .60-90 EXTRA 260 ARF-QB without fuel in the tank with the batteries installed and ready to fly. The engine, radio, servos, and battery you use will determine the final weight and locations of equipment. Try to balance the model by moving the battery and receiver before adding any ballast.

Note: Model should sit level when lifted from the wing tips

3. Start at recommended CG until you are comfortable with the flight characteristics of the aircraft. You may find this a bit nose heavy at first but that is fine to start with. After you are comfortable adjust the CG to suit your flying style in small steps, especially when shifting the CG toward the tail. Move the battery or add small stick on weights to the nose or tail as necessary.

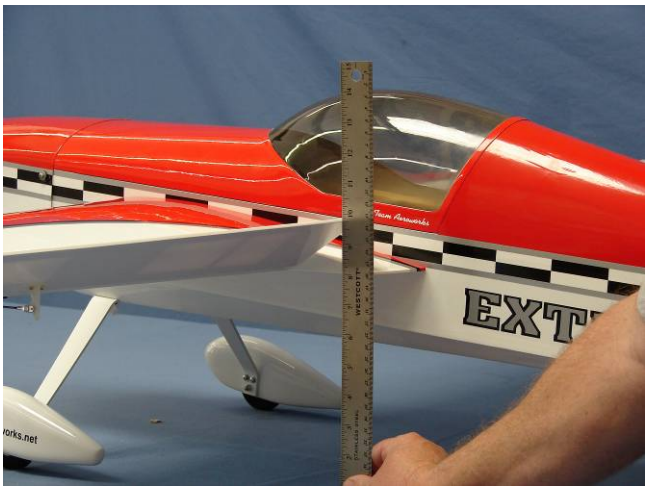
4. For aerobatic flying a more aft balance point is better. For smooth sport flying a more forward CG is better. An aircraft that is too nose heavy does not fly well and is difficult to land. A tail heavy aircraft is uncontrollable and will likely crash.

5. We have test flown the model at 2 1/4” C.G. locations and found the model to fly well .

Control Throws

1. The amount of control throw should be adjusted using mechanical means as much as possible and then electronically with the radio. The control throws are shown in degrees and inches of deflection measured at the widest point of the control surface for both low and high rates.

2. Use the widest part of the aileron as shown to measure the aileron throw in inches.

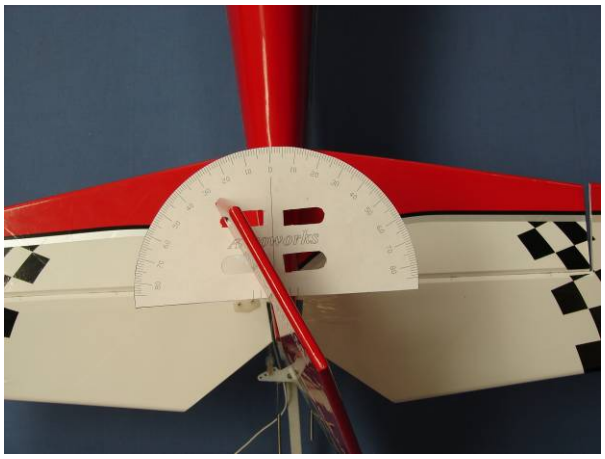


3. Use the widest part of the elevator as shown to measure the elevator throw in inches.

4. Gather the Rudder Throw Meter (***Supplied***) and scotch tape.

5. Slide the throw meter under the rudder boost tab. Use scotch tape to secure the throw meter to the rudder.

6. Degrees are measured at the tip of the boost tab as shown below.



7. Use a flight control deflection meter to measure the throws in degrees. Prop up the tail of the aircraft until the fuselage is parallel to the table top. Deflection meter is available from Aeroworks.

8. Use the widest part of the aileron to measure the aileron throw in degrees.

9. Use the widest part of the elevator to measure the elevator throw in degrees..

Control Throw Deflection Table

	Low Rate	High Rate
Aileron	1 ” or 16˚ up 1 ” or 16˚ down	1 1/2” or 25˚ up 1 1/2” or 25˚ down
Rudder	N/A” or 20˚ left N/A” or 20˚ right	N/A” or 35˚ left N/A” or 35˚ right
Elevator	7/8” or 16˚ up 7/8” or 16˚ down	1 3/4” or 25˚ up 1 3/4” or 25˚ down

For 3D flying use the following throws:

	3D Rate
Aileron	2 1/4” or 35˚ up 2 1/4” or 35˚ down
Rudder	N/A” or 40˚ left N/A” or 40˚ right
Elevator	2 1/2” or 45˚ up 2 1/2” or 45˚ down

We recommend 15% Expo on low rates, 30% expo on high rates, and 60% expo on 3D rates as a starting point. You a can adjust from there to suit your own flying style.

Preflight Checks

Center of Gravity: Check CG is set properly.

Engine: The engine should run smoothly at all throttle settings with smooth transition from idle to full throttle without stalling or hesitation. Do not fly an unreliable engine. Read engine instructions including break in and tuning completely.

Prop balancing: Ensure prop is properly balanced prior to mounting on engine.

Flight Controls: Ensure all flight controls are free from binding and are centered. Check that all hinges are tight and will not pull out. Control linkages must be rigid and tight and have no slop. Confirm proper direction of ailerons, rudder, and elevator. Experienced flyers have lost airplanes due to reversed ailerons. Right roll is right up, left down. Left roll is left up, right down.

Batteries: Transmitter, ignition and receiver batteries are fully charged.

Fasteners: Check all engine bolts, wing bolts, hatch bolts, servo screws, control horn bolts, wheel collars, and clevis keepers are tight and secure.

Covering: Check all covering and seams are sealed and secure.

Radio: Check trims set to neutral and controls centered. Check rate and condition switches set properly. Check the receiver antenna is fully extended and not reversed on it self.

Range check: Do a range check with and without the engine running in accordance with the radio manufacturer instructions. If there is insufficient range or a large reduction with the engine running, do not fly until it is resolved!

Fuel: Fill the fuel tank before each flight.

Aerobatics

The 60-90 EXTRA 260 ARF-QB is capable of any aerobatic maneuver. After you gain some confidence and little experience flying the airplane you can cut loose and perform any maneuver you can think of. Here is a list of some of the more popular aerobatic and 3D maneuvers you can try:

- Loops and rolls
- Knife edge flight
- Stall turns
- Snap rolls
- 2, 4, and 8 point rolls
- Slow rolls
- Spins upright and inverted
- Flat Spins upright and inverted
- Harriers upright and inverted
- Water falls
- Torque Rolls
- Rolling circles

The sky and your imagination are you only limits.

FLY and ENJOY!

AEROWORKS

60-90 EXTRA 260 ARF-QB NOTES